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# Legislative and Institutional Framework to Control Pollution from Land Use Activities in the United States Great Lakes Basin: Volume 1: Summary Report, A Comparative Analysis, Federal Framework

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Great Lakes Basin Commission

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# INTERNATIONAL REFERENCE GROUP ON GREAT LAKES POLLUTION FROM LAND USE ACTIVITIES

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**THE LEGISLATIVE AND INSTITUTIONAL FRAMEWORK  
TO CONTROL POLLUTION FROM LAND USE ACTIVITIES  
IN THE UNITED STATES GREAT LAKES BASIN**

**VOLUME I** -Summary Report  
-A Comparative Analysis  
-Federal Framework

PLUARG  
78-012  
Vol. 1  
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## VOLUME I

### THE LEGISLATIVE AND INSTITUTIONAL FRAMEWORK TO CONTROL POLLUTION FROM LAND USE ACTIVITIES IN THE UNITED STATES GREAT LAKES BASIN

#### SUMMARY REPORT A COMPARATIVE ANALYSIS FEDERAL FRAMEWORK

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IN SUBCONTRACT TO  
GREAT LAKES BASIN COMMISSION  
ANN ARBOR, MICHIGAN

To be used as a portion of the technical reports  
of the International Reference Group on  
GREAT LAKES POLLUTION FROM LAND USE ACTIVITIES  
of the International Joint Commission --  
Prepared in partial fulfillment of the  
U. S. Environmental Protection Agency  
Contract No. 68-01-1598  
with the Great Lakes Basin Commission

April 1978



## ACKNOWLEDGEMENTS

The study The Legislative and Institutional Framework to Control Pollution from Land Use Activities in the U.S. Great Lakes Basin was carried out as part of the efforts of the Pollution from Land Use Activities Reference Group (PLUARG), an organization of the International Joint Commission, established under the Canada-U.S. Great Lakes Water Quality Agreement of 1972. The study was completed by Linton & Company, Inc. under subcontract to the Great Lakes Basin with funding by the U.S. Environmental Protection Agency. Disclaimer: Findings and conclusions are those of the authors and do not necessarily reflect the views of the Reference Group, the States or Federal agencies considered in this Study, or PLUARG recommendations to the International Joint Commission.

In the preparation of this document, the Summary Report, and its ten supporting papers, Comparative Analysis, Federal, Illinois, Indiana, Michigan, Minnesota, New York, Pennsylvania, Ohio and Wisconsin, the PLUARG Task A Legislative Committee members and PLUARG State members provided valuable assistance and guidance. Mr. Eugene Jarecki of Great Lakes Basin Commission acted as the liaison and Technical Representative and provided encouragement, consultation and coordination to carry this project to fruition. The authors, Eric Schweitzer, William Stewart and Barbara Roth wish to specifically acknowledge the following:

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99	LABOR AND EQUIPMENT COSTS
100	LABOR AND EQUIPMENT COSTS



## CHAPTER 1

### INTRODUCTION

#### GENERAL

On April 15, 1972, the governments of Canada and the United States signed the Great Lakes Water Quality Agreement. As an integral part of this agreement, the International Joint Commission was asked to establish a Reference Group to study pollution in the Great Lakes system from agriculture, forestry, and other land uses.

Subsequently, the eighteen-member Pollution From Land Use Activities Reference Group (PLUARG) was formed with an equal number of Canadian and United States members to answer the following three questions:

- (1) Are the boundary waters of the Great Lakes System being polluted by land drainage (including ground surface runoff and sediments) from agriculture, forestry, urban and industrial land development, recreational and park land development, utility and transportation systems and natural sources?
- (2) If the answer to the foregoing question is in the affirmative, to what extent, by what causes, and in what localities is the pollution taking place?
- (3) If the Commission should find that pollution of the character just referred to is taking place, what remedial measures would, in its judgement, be most practicable; and what would be the probable cost thereof?

In order to provide an adequate response to this last question, the Reference Group proposed a series of studies to define all those remedial measures pertinent to the solution of the problem areas identified.

This study is specifically addressed to the review and the evaluation of the existing legislative/regulatory framework available for controlling pollution from land use activities.

Canada and the United States are jointly undertaking this study. They have asked the study participants to provide information on the following tasks:



- (1) Describe the content of the existing legislation/regulation framework available at each level of government (Federal, State, Special Purpose District, County and Municipal) for controlling the nonpoint discharges of sediments, nutrients, pesticides, and chemicals associated with the following land use categories:

	<u>Priority Rating</u>
(a) Urban Areas	H
(b) Transportation Corridors	M
(c) Extractive Operations	L
(d) Agriculture	H
(e) Recreational Areas	L
(f) Forested Areas	L
(g) Liquid, Solid and Deepwell Disposal Areas	H
(h) Shoreline Landfilling Activities	M
(i) Lakeshore and Riverbank Erosion	L

Special reference should be made to the provisions made at the local level for controlling these potential diffuse sources of pollution.

- (2) Describe the extent of the regulatory power, the commitment to develop and undertake programs and the degree of enforcement practiced at each of the specified levels of government relative to pollution from land use activities.
- (3) Identify other relevant government and non-governmental programs and policies which would have an indirect bearing on the control of pollution from land use activities (i.e., sediments, nutrients, pesticides and chemicals).
- (4) Identify those land use categories for which the four major pollutants (sediments, nutrients, pesticides and chemicals) are least controlled.
- (5) In terms of the present jurisdictional framework (i.e., State and County), outline what possibilities for future action are available to each level of government. This would include an analysis of the constitutional limitations operating at each level of government and the potential of the existing legislative/regulatory framework for controlling non-point sources of pollution.
- (6) Describe the alternatives for the future evolution of this legislative/regulatory framework based on discussions with those persons actively working with the present framework
- (7) Coordination between the Canadian contractors and the United States to develop a standardized format for comparing the legislative and regulatory approaches taken in each country.

To achieve these tasks, reports on the controls in each of the eight U.S. Great Lakes States, the Federal government, and a comparison of the controls between states within the framework of the Federal program are analyzed. This report presents a summary of each of these reports. The reader is referred to the individual reports for additional details.



## CHAPTER 2

### DEFINITIONS AND METHODOLOGY

#### GENERAL

This Chapter presents the definitions of the land use activities, the control components studied and a summary of the methodology used to compile this study. The land use activities for which centrals are studies are those that PLUARG has found may cause nonpoint pollution, they are presented in priority of concern as identified by PLUARG. The control components are compatible with those used in the legislative report for the Canadian side of the Great Lakes Basin. The methodology is divided into three steps--data collection, analysis, and evaluation and identification of future actions--for each state and the federal government. These studies become the basis for the comparison of centrals and their implementation, within the basin.

#### LAND USE ACTIVITIES

The Reference Group has identified the land use activities which may contribute to pollution. The activities are grouped into land use categories, where the priority of concern is identified.<sup>1</sup>

- (1) Urban Areas -- high priority. This category has two land use activities -- site runoff from construction activities and stormwater runoff. These areas are the densely settled, built-up areas generally including those economic activities requiring the concentration of firms and the work force.
- (2) Agriculture -- high priority. This category has five land use activities -- application of pesticides, application of fertilizers, feedlot operations, erosion from general farm practices, and drainage. An agricultural area is defined as those lands including structures actively committed to the production of food and fibre.
- (3) Liquid, Solid and Deepwell Waste Disposal Areas -- high priority. There are three land use activities -- solid waste disposal, liquid sludge disposal and deepwell disposal. This category includes those areas used for landfills, land application of wastewater effluents and the injecting of wastes into subsurface geological formations.
- (4) Transportation Corridors -- medium priority. One land use activity is considered -- runoff from construction, maintenance and use of transportation facilities. These facilities include highways and roads, airports, railroads, and utility corridors.



- (5) Shoreline Landfilling Activities -- medium priority. This category has two land use activities -- land or construction excavations and dredging. There is no definition as to the distance from the water's edge in which controls should be enforced.
- (6) Extractive Operations -- low priority. Three land use activities have been identified -- pits and quarries, mining, and the disposal of brines from oil and gas operations. The land areas covered are those taken by the removal and primary processing of materials from either bedrock or surface deposits.
- (7) Recreation Areas -- low priority. Three land use activities have been identified -- runoff related to specific recreational activities, pesticide use and private waste disposal. This category includes public and private lands designated for recreational use.
- (8) Forested Areas -- low priority. Four land use activities have been identified as sources of pollution -- timber production, woodland grazing, wildlife management and recreation.

#### CONTROL COMPONENTS

Research by the contractor and the Canadian contractors has identified six control components which can be applied in different combinations and to different degrees in controlling land use activities which have the potential of causing nonpoint pollution in a specific area. The components identified are:<sup>2</sup>

- PC - Direct Pollution Control -- where a specific activity is controlled by law or regulation through prevention or reactive means. Preventive control is where a proposed or continuing activity must receive approval from a designated agency prior to the implementation, or at periodic intervals. Reactive control is where an activity may proceed without prior approval, but is subject to control retroactivity if standards are violated. An example of a preventive control is requiring a permit for activities within a specific distance from a lake or stream. A reactive control is the fining of a governmental highway department for a fish kill that resulted from inadequate control of runoff from a road construction project.
- P - Planning -- where a plan of a specific activity must be submitted prior to implementation of the activity, or where a local or State agency develops a general or specific plan, including water quality considerations, which must be followed in approving and/or implementing specific actions. Examples of this would be a site plan showing the stormwater and site runoff control measures to be employed during and after development and a comprehensive land use plan for a locality.
- OS - Indirect Control -- where an act or regulation has been implemented for another major purpose, but will have an indirect impact on controlling nonpoint pollution. An example of this type of control is the review and licensing of sanitary landfill operators to insure that the landfill does not become a health hazard.



- NS - Non-Statutory Control -- programs that are not in direct response to a legislative mandate, but which are designed to reduce pollution. This includes educational and citizen participation programs and technical assistance provided to various client groups. An example is the soil conservation courses of an agricultural extension agent or a State agency assisting a locality in developing a comprehensive plan.
- MP - Management of Public Lands -- the guidelines adopted by a public agency on how it will maintain the lands that it owns. This also includes how the agency views its responsibilities in responding to the controls of other public agencies. An example is the practice of right-of-way maintenance practiced by a department of transportation and its response to sedimentation controls imposed by a pollution control agency.
- F - Fiscal Incentives or Disincentives -- where public agencies provide monetary incentives to other public agencies or private groups or individuals to assist in the implementation of pollution abatement programs. A disincentive is where costs are imposed without assistance or an activity requires payment of an additional tax. An example of an incentive is the agricultural cost sharing program, while a disincentive is the higher taxing of an individual who does not provide adequate drainage on his land.

#### METHODOLOGY

The methodology used in completing this study is made up of the following components:

- Inventory of legislation based on literature review and expansion and refinement by PLUARG and Great Lakes Basin Commission officials and/or staff
- Development of a series of reports, one for each state and the federal government. These are based on the inventory and interviews of federal, state and local officials. They present the organizational and legislative frameworks and the program implementation.
- A comparison of state authority within the federal framework is developed.
- A summary of the study is prepared.

The methodology used for each report is presented with report.



FOOTNOTES -- CHAPTER 2

1. International Reference Group on Great Lakes Pollution from Land Use Activities, Detailed Study Plan Supplement, August 1976, International Joint Commission, p.8. (Also see "Summary Review of Pollution from Land Use Activities" for a more detailed description.)
2. Castrilli, J.F., Pollution from Land Use Activities Reference Group: Legislative Study Interim Report No. 1, Urban Areas, Canadian Environmental Law Research Foundation, May 1976. Supplemented a Task A Committee meeting June 15, 1977, Detroit, Michigan, and letter of July 26, 1977 by G. Bangay, Coordinator, Land Drainage Studies, Environmental Protection Service, Canada Center for Inland Waters, Burlington, Ontario.



## CHAPTER 3

### OVERVIEW

#### GENERAL

This Chapter presents a summary of the nonpoint pollution control authorities and their implementation in each of the Great Lakes states. The Federal authorities and their implementation are also presented. The summary is divided by land use activity.

The types of controls and references to summary and detailed description are presented in Table I.



TABLE I

SUMMARY: TYPE OF CONTROLS AND REFERENCES

INSTITUTION																											
LAND USE ACTIVITY	FEDERAL			ILLINOIS			INDIANA			MICHIGAN			MINNESOTA			NEW YORK			OHIO			PENNA.			WISCONSIN		
	T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE	
		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR
URBAN AREAS																											
Construction Site Runoff	PC NS P	14	54				PC	15	25	PC	15	24	PC	16	24	OS PC P P F	16	25	P NS PC PC P	16	29	PC	16	24	PC P NS PC P	17	29
Stormwater Runoff		18	54	PC P	18	13	PC P	18	35	PC P	18	32	PC P	19	31		19	27		19	31	PC P	19	30	PC P	19	33
AGRICULTURE																											
Pesticides	PC	20	56				PC NS	20	36	PC	21	34	PC NS	21	31	PC	21	28	PC	21	33	PC	21	31	PC	21	34
Fertilizers	NS	22	57				NS	22	37	NS	22	35	NS	22	37	NS	22	29	NS	22	36	NS	22	32	NS	23	37
Feedlot Operations	NS F	23	57				PC	23	38			37	PC	24	38	NS	24	30	NS F	24	36	NS	24	33	PC	24	36

LEGEND

PC = Direct Pollution Control  
P = Planning  
OS = Indirect Control  
NS = Non-Statutory Control  
MP = Management of Public Lands

F = Fiscal Incentives or Disincentives  
Page = page where details can be found  
SUM = page reference to this summary report  
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NOTE: Identification of a land use activity with a control mechanism symbol does not mean that the area is adequately controlled. Reference should be made to the pages cited.



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	T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE		T Y P E	PAGE	
		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR
AGRICULTURE (cont.)																											
Erosion from Farm Practices	F NS P	25	57				OS NS PC P	25	41	PC NS	26	37	OS P F	26	39	PC P NS	26	30	PC NS F	27	38	PC NS	27	33	PC	27	38
Drainage	F	28	58				OS	29	40	OS	29	39	OS	29	40	OS	29	32	OS	29	41	PC	29	35	OS	29	40
LIQUID, SOLID AND DEEPWELL DISPOSAL																											
Solid Waste	PC P F	30	59				PC	30	44	PC	31	41	P PC	31	40	PC P F	31	32	PC P F	32	42	PC P F NS	32	35	PC P F NS OS	33	41
Liquid Sewage Sludge	PC P F	34	59				PC	34	45	PC	34	42	PC	34	43		35	39	PC	35	45	PC	35	39	PC P	35	43

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		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR	SUM	SR	SUM	SR
LIQUID, SOLID AND DEEPWELL DISPOSAL (cont.)																															
Private Sewage Disposal	P	36	59				PC NS P	36	46	PC P	36	44	PC NS P	37	43	PC	37	40	PC	37	46	PC P	38	40	PC P	38	44				
TRANSPORTATION CORRIDORS																															
Runoff from Con- struction and Maintenance	PC	39	60				OS	39	48	PC OS	39	46	OS	39	45	OS	40	41	OS	40	50	PC OS	40	43	OS P	40	49				
SHORELINE LAND- FILLING																															
Land and Construc- tion Excavation	P F	40	60	PC P F	41	21	PC P	42	49	PC P	42	47		42	49	PC P	42	42		42	51	PC P	42	43	PC NS OS	43	49				

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		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR
<u>SHORELINE LAND-FILLING (cont.)</u>																											
Dredging	PC P F	40	60	PC MP	41	20	PC	42	49	PC P	42	47	PC	42	49	PC P	42	42	PC	42	51	PC	42	43		43	49
<u>EXTRACTIVE OPERATIONS</u>																											
Pits and Quarries		43						43		OS	43	49				PC P	43	43		51	PC P	43	44				
Mining	NS	44	61				PC P F	44	51	PC P F	44	49	PC P MP	45	45	PC P	45	45	PC P	45	53	PC P	45	44	PC P F	45	51
Brines from Oil and Gas	PC	46	61				PC	46	50	PC NS	46	51		46	49	PC	46	44	PC F	46	52	PC MP	47	45		47	

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		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR
RECREATION																											
Runoff from specific types of facilities	PF	47	61	MP	48	27	OS	48	51	OS	48	52	P OS	48	50	PC RS	48	47	P	49	54	P OS	49	46	OS	49	52
Pesticides - See presentation under AGRICULTURE																											
Private Sewage Disposal - See presentation under LIQUID, SOLID AND DEEPWELL DISPOSAL																											
LAKESHORE AND RIVER-BANKS																											
Erosion	P NS F	49	52	PC	50	27	OS	50	51	PC OS	50	53	PC	50	51	P PC	51	48		51	54		51	47	PC	51	53

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		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR
FOREST AREAS																											
Timber Production	P	51	62				NS	52	52	PC	52	53	NS	52	56	NS P	52	49	OS F	53	56	OS NS F	53	47	MP	53	53
Woodland Grazing																		51	OS	53	56						
Wildlife Management																		51		53				PC	53	53	
Recreation - See presentation under RECREATION																											

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OS = Indirect Control  
NS = Non-Statutory Control  
MP = Management of Public Lands

F = Fiscal Incentives or Disincentives  
Page = page where details can be found  
SUM = page reference to this summary report  
SR = page reference to federal or state report

NOTE: Identification of a land use activity with a control mechanism symbol does not mean that the area is adequately controlled. Reference should be made to the pages cited.



## URBAN AREAS

### Construction Site Runoff

The only direct involvement with construction site runoff by the Federal government is the Water Quality Management Plan requirement of Section 208 of the 1972 Water Pollution Control Act as amended by the Clean Water Act of 1977, which is to be administered by the Environmental Protection Agency. Under the Act, designated area and statewide planning agencies are required to develop and implement controls over construction site runoff as part of their Plan. The Plan must identify management agency(ies) capable of implementing the plan and provide funding. EPA does not anticipate that federal funding for implementation will be available. Currently, the plans are in the development phase with all plans required to be completed by November 1978.

Additional federal involvement is through the U.S. Department of Agriculture, Soil Conservation Service, working through local soil conservation districts, which provides technical assistance to localities and individuals to help develop and implement conservation plans which will reduce sedimentation from construction activities.

Indirect control is provided through the Department of Housing and Urban Development's (DHUD) 701 planning program which has provided funds for a number of years to regional planning agencies for the development of comprehensive and specific land use plans. In the development of these plans, the local planners can address sedimentation problems and develop plans that will limit or prohibit development in sensitive areas where a high degree of erosion is likely to take place.

DHUD also administers the Federal Flood Control Act, which requires the development of flood control plans, with federal and local officials, to place restrictions on development in the flood plain of any stream that receives flood control assistance. Thus, this is an indirect control on sedimentation resulting from construction site activities.

The control of sediment runoff from construction sites has traditionally been the responsibility of local governments in all Great Lakes Basin states. As a result, not all states have statewide controls\* or have developed state and local cooperative arrangements to control construction site runoff. Control of any construction site activities at the local level is accomplished through ordinances authorized through general enabling powers. This is a direct control and is usually implemented through the plan approvals required before the issuance of a building permit. All states have provided local government with zoning and subdivision control powers, which allow for environmentally-oriented reviews of construction activities. With a few exceptions, most local jurisdictions do not review zoning and subdivision applications from an environmental standpoint.

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\* See Appendix A Alternative Provisions for Use With the Model State Act for Soil Erosion and Sediment Control



Soil conservation districts in all the Great Lakes Basin states provide soils information and practice standards and specifications to municipalities and developers to control sediment from construction sites. In addition, the districts assist municipalities in the development of sediment control ordinances.

Construction site runoff is not one of the land use activities analyzed for the state of Illinois.

In Indiana, there is no statewide regulatory sediment control program for construction site runoff.

Currently, a bill is before the State legislature, known as the Soil Erosion Sediment Control Act, that provides authority for the control of construction activities. This bill calls for: (1) the establishment of a comprehensive erosion and sediment control program, (2) the development of guidelines which would set forth erosion and sediment control practices, and (3) specifications which, when properly applied, will reduce soil loss. The bill requires plan approval before any land disturbing activity can commence. The existing State Soil and Water Conservation Committee and the local SWCD's would be responsible for implementing this Act.

Currently in Indiana, however, there are several authorities which provide general powers to control to County Drainage Boards, Metropolitan and Area Plan Commissions and cities, towns and countries. All of these governmental units focus their efforts on problems other than strict water quality concerns. As a result, actions taken by these agencies only have an indirect impact on pollution caused by site runoff.

At the state level, the Natural Resources Commission has the authority to regulate construction activities in floodways by virtue of its authority to issue permits for construction in floodways or on the shoreline of lakes.

In Michigan, under the Soil Erosion and Sediment Control Act, the Department of Natural Resources has the authority to control all major earth moving activities except those dealing with logging and mining. After 1979 agricultural activities, except plowing and tilling, will be subject to control. A major earth moving activity is defined as a project that disturbs one or more acres of land, or is within 500 feet of a waterway.

Local governments are responsible for developing and enforcing local soil erosion and sediment control programs and designate local enforcement agencies which must have their soil erosion control program approved by the state. Any public or private organization or individual who engages in a major earth change must obtain a permit from the local enforcement agency. A public agency may become an authorized public agency and control its own activities.



Local enforcement agencies can either approve or disapprove a plan. They are responsible for the on-site monitoring of construction activities to ensure that practices described in the approved plan are being utilized. There are 396 local enforcement agencies attempting to carry out the requirements of the Act, with the degree of enforcement varying between agencies.

In Minnesota, the state has no direct controls on construction site runoff. In cases where specific degradation of surface waters violate general water quality standards, abatement of sedimentation can be enforced by the Minnesota Pollution Control Agency.

Local jurisdictions in Minnesota can control construction site activities through powers provided in their general enabling legislation. Few localities have taken the initiative to adopt control measures.

Like Indiana and Minnesota, New York has no statewide regulatory sediment control programs for construction sites. Only in cases where specific degradation violates general water quality standards or for construction activities within 100 feet of a lake or stream can the Department of Environmental Conservation (DEC) control construction activities. Environmental impact statements are required for most construction activities.

Localities may control construction site runoff in New York through the adoption of ordinances that regulate land uses and types of structures. More specifically, local government has the authority to adopt ordinances that require erosion and sediment control plans for land disturbing activities in their subdivision control plans. Subdivision control and land development ordinances are enforced through building permits. Some municipalities have guidelines and/or ordinances directed at controlling construction activities.

In Ohio, 1971 legislation required the Division of Soil District and Water, Department of Natural Resources and two Advisory Boards, to develop an agricultural and urban sedimentation control program. To date, legislation that would authorize such a program has been developed and submitted to the Ohio General Assembly for approval. The proposed legislation will provide county commissions and municipalities with the authority to adopt rules requiring best management practices to control the rate of runoff. The Chief of the Division of Soil and Water Districts is required to develop standards and regulations and to enforce them in counties and municipalities which do not have urban sediment pollution abatement programs meeting state standards.

In Pennsylvania, the Department of Environmental Resources (DER) has the authority to control construction site runoff under the Clean Streams Act. The department is responsible for adopting and implementing regulations and a program to control erosion and sedimentation. Under current



rules, a plan must be developed for every earth moving activity. According to state officials, insufficient financial resources are allocated to DER to administer the permit program. Consequently, limited staff are assigned to this program which weakens enforcement of the program.

In Wisconsin, localities have the authority to control construction activities through their powers to enact and enforce zoning ordinances, subdivision regulations, building and sanitary codes and to adopt a development plan. Few municipalities have taken steps to pass ordinances that would control construction site runoff. The few localities which have enforcement powers lack financial resources to implement the program.

There are also two special purpose districts in Wisconsin which have the authority to control construction site erosion. They are the Inland Lake Protection Districts and Soil and Water Conservation Districts. Inland Lake Protection Districts, through the Inland Lake Protection Program, have already focused their attention on sediment runoff problems. The Districts are established to plan, adopt and carry out lake protection and rehabilitation projects. They do not have the power to enact zoning or lake use ordinances. The Districts receive technical assistance from the state to develop individual sediment control programs. The impact of their program remains to be seen.

Soil and Water Conservation Districts (SWCD) can directly control construction site runoff through land use regulations. Only one of the SWCD's in Wisconsin has adopted land use controls. They can also aid in regulating runoff by assisting cities and villages in developing conservation and comprehensive plans, and providing information and technical assistance. The Washington County Project funded as a Great Lakes Demonstration grant addresses runoff problems. One of the recommendations growing out of the project will be model legislation which will create an easier process of adopting controls by Soil and Water Conservation Districts.

Wisconsin's Shoreland Zoning Program provides an instrument for the Department of Natural Resources (DNR) and local jurisdictions to control construction site activities in shoreland areas.

Under the program, DNR is responsible for preparing comprehensive plans for control of land use activities in shoreland areas and establishing guidelines for the development of local shoreland ordinances. Local jurisdictions are responsible for adopting and implementing ordinances which comply with the state guidelines. To date, the state has completed developing its comprehensive plan and guidelines. Almost all counties have adopted or are in the final stages of adopting a Shoreland Zoning Ordinance.



## Stormwater Runoff

The control of stormwater runoff must be looked at from two different viewpoints: (1) nonstructural, which is an attempt to reduce the amount of runoff and/or pollutions that ultimately end up in a collection system, and (2) structural, which is the treatment of the water that is collected.

The responsibility for control of stormwater runoff is traditionally a local one with no states having control programs. Local activities to date have primarily been to construct collection facilities, originally combining stormwater with sanitary sewage but, more recently, placing emphasis on separating stormwater from sanitary sewage. Also, in recent years, some localities have required stormwater management measures in new developments through zoning and subdivision ordinances. This has led to the development of retention ponds and the use of other devices to reduce the amount of stormwater or to mitigate its pollution effect. All state and local jurisdictions are awaiting the completion of the current Water Quality Management Plans before they take any additional action.

The federal government has no direct control over urban stormwater runoff. The Water Quality Management Planning Program requires that state and local governments develop solutions to their stormwater runoff problems. These solutions must be a combination of structural and nonstructural. Federal flood control requirements also have an impact on stormwater runoff.

In Illinois, the Chicago Metropolitan Sanitary District has recommended a plan for intercepting a majority of stormwater outfalls, and significantly reducing the impact of stormwater runoff in Lake Michigan. State and federal officials are currently reviewing this plan.

In Indiana, local jurisdictions have the authority to control stormwater runoff through their zoning and subdivision authority and the local responsibility to provide public services. Certain special districts have authority to construct stormwater control facilities. At the state level, the Department of Natural Resources and the Board of Health are trying to define and develop technical solutions. Unfortunately, because of limited amount of technical knowledge and/or implementation funds, the state and local jurisdictions have been unable to develop effective control measures.

In Michigan, local jurisdictions have the authority to control stormwater runoff through their zoning powers, subdivision requirements, and their responsibility to provide public services. However, these authorities have not been effectively used as a control measure for pollution from urban stormwater runoff in Michigan.



Various state and local agencies have the authority through the Michigan Subdivision Control Act to approve the subdivision of land. This authority may be used as an indirect method to review development plans to insure proper stormwater control. The use of this Act for this purpose varies from agency to agency. In addition, the Michigan Drain Code gives the County Drain Commission authority to control stormwater runoff.

In Minnesota, stormwater runoff is regulated by municipalities, towns, and/or regional sanitary sewer districts through their responsibility to build and operate public works which include drains and ditches. Few localities have attempted to address stormwater runoff.

In New York, the State has authority to issue permits for combined sewers. Funding for construction of combined sewer systems is not available at the State level unless it can be shown that combined sewers are more cost-effective than a separate system. Due to the small amount of information available to the Contractor, the degree to which local jurisdictions are involved in stormwater control in New York cannot be determined. Local jurisdictions have the authority to control and effect stormwater runoff through their zoning powers, and subdivision requirements, and their responsibility to provide public services.

In Ohio, municipalities and sewer districts have the authority to control stormwater runoff. In certain municipalities a separate department is established to manage and supervise all public works. Each municipality is responsible for planning and constructing sanitary and storm sewer systems.

Local jurisdictions have zoning powers and subdivision requirements which provide them with the authority to control stormwater runoff. As in all Great Lakes states, technical solutions to stormwater runoff problems are in the process of being developed. Until the technical solutions become available, existing authorities cannot be applied specifically to resolve this problem.

Stormwater runoff is being given top priority in two Water Quality Management Plans in Pennsylvania. Local jurisdictions have the authority to control stormwater runoff through their general zoning powers, subdivision regulations, and through their responsibility to provide basic public services.

In Wisconsin, stormwater is controlled by one of a number of special districts: metropolitan sewage districts (MSD); joint sewerage commissions (JSC); and town sanitary districts. Each district has the authority to plan, construct and operate stormwater sewers. MSDs and JSCs may also treat stormwater.



## AGRICULTURE

### Pesticides

Federal acts which have an impact on the use of pesticides from a water quality standpoint are the Federal Environmental Pesticide Control Act of 1972, controlling the use of pesticides, and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), controlling the manufacture, sale, and transportation of pesticides.

Under FIFRA, the Environmental Protection Agency (EPA) is given the authority to classify pesticides, to require the certification of all commercial and private applicators of pesticides, and to require the states to submit plans which will contain the standards for certification and the state agency responsible for administering a certification and monitoring the program. The EPA must establish standards identifying which, how and who may use pesticides, and the training necessary for the users. These standards become the basis for the development of the state programs.

The Federal Pesticide Control Act requires EPA to test and certify all pesticides that are in use and only certify for use those pesticides that have limited and short-term impact on the environment as a whole. EPA's funding to carry out this program is limited; therefore, it will be many years before all pesticides can be tested. This lack of sufficient testing should not, in the Contractor's opinion, deter from the positive aspects that are taking place at the state level in terms of the control of the application of pesticides and the user training programs.

Within the states, the control of pesticides has traditionally been a function of state government. No activity was identified at the local level in terms of controlling pesticides. The states have encountered problems in developing their programs, primarily in determining what to control and how to control it. This difficulty is the result of the lack of technical information on the impact of chemicals on water quality, and the requirement for the development of mechanisms to control activities which in the past have not been regulated.

The problems associated with pesticides were not analyzed for the state of Illinois.

In Indiana, the State Chemist is responsible for prescribing standards for certification and issuing operator licenses. This office also develops the pesticide applicators' training program. The Indiana Cooperative Extensive Service has primary responsibility for conducting the training program. There are still a substantial number of applicators to certify, but the program has been well accepted in the state. The Indiana Pesticide Review Board is responsible for developing regulations with regard to the transport, storage and disposal of any pesticide or pesticide container. There appears to be adequate staff to enforce the overall program.



The use and application of pesticides in Michigan are controlled at the State level. By law, all pesticides must be registered with the Department of Agriculture. All dealers of restricted pesticides, commercial applicators and farmers who apply pesticides must be licensed by the Department.

Pesticides are controlled in Minnesota by the Department of Agriculture, which operates a crop pest control program. Its activities include field surveys, inspection and certification of pesticides being moved interstate and intrastate, and publication and dissemination of information. The Department is also responsible for regulating the labelling, distribution, and sale of pesticides. In addition, the Department operates an applicators' licensing program for commercial applicators. The Department offers nine categories for licensing. It also has a restricted use program. The Agricultural Extension Service develops and provides the actual training material.

In New York, the Department of Environmental Conservation establishes procedures for cleaning and disposing of pesticide containers and unwanted or unused pesticides. New York is one of the few states that does this. It also determines which pesticides may be used or restricted and by whom and how they can be distributed. The Department is responsible for certifying commercial and private applicators.

The Department is anxious to certify and license all applicators and there appears to be adequate staff to accomplish this. The program is comprehensive in its approach and uses a mandatory training program to increase the skills of the individuals handling and applying pesticides.

The distribution, sale, transport, storage and application of pesticides in Ohio is regulated by the Department of Agriculture which also operates a training program to certify commercial and private applicators. The program is in its initial stages of operation with many policy decisions still being made. To keep up with the increasing number of certified applicators and applicants, it will be necessary for the Department to expand its program.

The use, distribution, storage, application and disposal of pesticides is regulated at the state level in Pennsylvania. All pesticides and pesticide dealers must be registered with the Department of Agriculture. The Department has developed and is conducting a training program for applicators, and carries out routine field inspections.

In Wisconsin, pesticide use, sale, distribution and storage are regulated through the issuance of a permit by the Department of Agriculture. These application permits are handled on a case by case basis and may set additional restrictions depending upon local circumstances.



## Fertilizers

The Federal government has no controls on fertilizers. The Soil Conservation Service provides soil surveys and miscellaneous technical assistance to farmers.

The state Cooperative Extension Service arranges for soil tests and gives advice on fertilizer application throughout the Great Lakes Basin. It is the consensus of the state officials interviewed by the Contractor. that fertilizers cannot be controlled until further studies are completed on the appropriate rates and time of application. Since these rates and times vary from farm to farm and crop to crop, it is extremely difficult to write a control program. Officials feel that rising prices will make fertilizer misuse less likely in the future. A shift from "build-up" to "sustaining" level recommendations by state Extension Services should assure fertilizer runoff does not become a problem. Farmers use Extension Service recommendations as the basis for their own fertilizer application rates.

The problems associated with fertilizers were not analyzed for the state of Illinois.

The use of fertilizers in Indiana is not regulated. The Pesticide Review Board regulates the labelling of fertilizers. The Cooperative Extension Office and fertilizer dealers provide applicators with advice on application and soil tests.

Michigan has a statute controlling the manufacture, distribution, labelling, sale and advertising of fertilizers. The Department of Agriculture is responsible for administering the Act. The State Agricultural Extension Service gives farmers advice with regard to the application of fertilizers.

Minnesota's Department of Agriculture has the authority to regulate the usage of fertilizers. Unfortunately, technical information concerning the type of crop, time and usage of fertilizer by type of crop is not available. Thus, no regulations have been developed with regard to fertilizers.

There are no direct controls on fertilizers in Ohio. The Cooperative Extension Service does provide farmers with application information.

There are also no direct controls on fertilizers in Pennsylvania and New York. The Cooperative Extension Service in both states provide farmers with advice as to the time, method and amount of fertilizer that should be applied. Because the water quality impact of fertilizers in relation to time and method is unknown, no regulations have been developed to limit their effect on stream and groundwater quality.



Wisconsin does not have any direct controls on the application of fertilizers. The state is currently attempting to obtain better information on the time, rate and method of application of fertilizers to determine if there are regulatory or non-regulatory programs that might control the use of fertilizers. The Agricultural Extension Service does provide information to farmers on the application of fertilizers.

### Feedlots

Under Section 401 of the Federal Water Pollution Control Act, as amended, the Environmental Protection Agency operates the National Pollution Discharge Elimination System (NPDES). This system requires permits to control discharges from animal feedlot operations if (1) the feedlot operation has 1,000 or more animal units; or (2) a feedlot operation with more than 300 animal units is discharging pollutants through a man-made conveyance, or directly into navigable waters. A feedlot operation with less than 300 animal units is not required to have a permit. These smaller operations are defined as a nonpoint source of pollution, and are subject to best management practices as requirements are developed and ultimately implemented by state and local jurisdictions through the Water Quality Management Planning Program.

The U.S. Soil Conservation Service and the Cooperative Extension Services operate technical assistance programs that incorporate rural pollution abatement techniques. Cost share assistance is available from the Agricultural Stabilization and Conservation Service under the Agricultural Conservation Program. In addition, the 1977 Clean Water Act established an agricultural cost-sharing program to provide technical and financial assistance to land owners and operators of rural land to install and maintain measures designed to reduce nonpoint source pollution.

The problems associated with feedlot operations were not analysed for the state of Illinois.

In Indiana, intensive animal feedlots are regulated by the Stream Pollution Control Board under the Indiana Confined Feeding Act, which requires a permit to operate a confined feedlot.

A small staff devotes approximately 60% of its time to the review of confined feeding control plans and the issuing of permits. Routine inspection and monitoring are not possible.

There are feedlots in Michigan which meet the size requirement for the NPDES permit. However, since they irrigate or land dispose of the pond water and have no discharge to surface waters, they are not required to obtain a permit. Feedlot operations have not been identified as a serious problem and no future action to control feedlot operations is anticipated.



In Minnesota, the Minnesota Pollution Control Agency is responsible for operating a feedlot program, where a permit is required to construct or expand a facility. Nearly 4,500 permits have been issued. Over 5,000 will be issued by the end of 1977. The program is not operating effectively due to a limited number of staff available to enforce the program.

In New York, voluntary codes of good practice have been developed for disposal of agricultural waste. Some individuals feel they are not as comprehensive as they could be.

In Ohio, guidelines developed by the Department of Agriculture, DNR and the Cooperative Extension Service provide farmers with a basis for making sound management decisions on handling animal wastes. Animal feedlot operators excluded from EPA's permit program are not required to follow the guidelines. However, it is thought the majority of them comply with the guidelines.

The Ohio Cooperative Extension Service and the Division of Soil and Water Districts provide educational services and help identify major problems and methods of solving the problems. The local Soil and Water Conservation Districts encourage livestock owners and operators to carry out their operations in such a manner that pollution is abated. Each Soil and Water District provides information, technical assistance and cost-share assistance when requested.

Ohio has proposed an Agricultural Pollution Abatement Program that would make best management practices mandatory and provide enforcement through a complaint system. This program is to be implemented through the local Soil and Water Conservation Districts with advice given by the USDA Soil Conservation Service and extension agents.

In Pennsylvania, the Department of Environmental Resources (DER) is given a general grant of authority to regulate any activity which creates a danger of pollution or has a potential for pollution. The regulation of feedlot operations falls within DER's general grant of power. DER has adopted regulations which establish how an activity that has the potential for causing pollution must operate. However, no specific regulations have been adopted to fit feedlot operations. Guidelines have been developed to integrate environmental protection and good farming practices.

In Wisconsin, the Department of Natural Resources (DNR) has the authority to develop controls regulating animal feedlot operations. Rules have been proposed which will provide farmers with a basis for sound management decisions which are compatible with water resources concerns. Adoption of controls has been delayed until studies to strengthen the technical base upon which controls can be developed and completed.



## Erosion from Farm Practices

At the Federal level, the control of erosion from agricultural practices is one of the requirements that must be included in all of the Water Quality Management Plans currently being developed at the state and local level. There are two additional programs which provide assistance to farmers to help control erosion from farm activities. They are the Agricultural Cost Sharing Program of the Soil Conservation Service and the Agricultural Conservation Program of the Agricultural Stabilization and Conservation Service. The Soil Conservation Service, under the Agricultural Cost Sharing Program, may enter into contracts of not less than five years nor more than ten years with owners and operators having control of rural land for the purpose of installing and maintaining measures incorporating best management practices to control nonpoint source pollution. The SCS also has completed soil surveys in the Great Lakes Basin. The Agricultural Stabilization and Conservation Service utilizes cost sharing as a method to accomplish soil and water conservation and to prevent or abate agriculture-related pollution of water, land and air. ASCS shares the costs with farmers, ranchers, and woodland owners of installing approved soil and water conserving pollution-abatement and related wildlife-conserving practices in accordance with specified technical standards. These are practices which farmers generally would not perform to the needed extent with their own resources. The rate of cost-sharing averages between 50-75 percent of the cost.

While several states have different types of controls,\* none of them deal with tilling and plowing, which is by far the greatest earth moving activity on a farm. The U.S. Soil Conservation Service program of providing technical assistance by developing voluntary conservation plans for individual farmers through local Soil and Water Conservation Districts is found in all states.

The problems associated with erosion from farm practices were not analyzed for the state of Illinois.

In Indiana, there are no laws specifically directed at mandatory control of sediment. The Soil and Water Conservation Act does provide Soil and Water Conservation Districts with the authority to develop programs and plans that will reduce sedimentation. SWCD's may adopt programs and plans that include engineering operations, improved cropping practices, seeding and planting of eroded lands, reforestation, soil stabilization, and runoff retardation. They also have the authority to develop comprehensive resource conservation plans and to assist land occupiers within their districts to achieve resource conservation objectives.

Conservancy Districts in Indiana also have the authority to control and prevent erosion and sedimentation. Conservancy Districts are given the opportunity to regulate water pollution, soil erosion, as well as other activities by means of the district plan. Local governmental units have the authority to pass their own sediment control ordinances. There is a bill before the State Legislature that would provide erosion and sedimen-

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\* See Appendix A, Alternative Provisions for Use With the Model State Act For Soil Erosion and Sediment Control



tation controls for agricultural areas as well as urban areas. The proposed legislation would authorize and direct the State Soil and Water Conservation Committee to develop and coordinate a comprehensive State erosion and sediment control program. The Committee would also be responsible for establishing maximum soil losses to be tolerated as standards for disturbing activities and critical erosion areas and set guidelines that detail erosion and sediment control practices. The bill requires everyone engaging in a land disturbing activity to submit a plan for erosion and sediment control.

In Michigan, the Sediment Control Act provides the State with the authority to control all major earth moving activities except those dealing with logging and mining. The implementation of agricultural practices, however, shall not take effect until January 1, 1979. Agricultural practices in the context of the Act include all farming operations except the plowing and tilling of land for the purpose of crop production or the harvesting of crops. The Act requires a landowner or developer to obtain a permit from an appropriate enforcement agency prior to a major earth change. An application for a permit must be accompanied by an approved soil erosion and sedimentation control plan.

A major earth moving activity is defined as a project that disturbs one or more acres of land, or is within 500 feet of a waterway. Acting through the Michigan Water Resources Commission, the Department of Natural Resources is responsible for administration of the Act.

Soil Conservation Districts have the authority to assist in developing comprehensive conservation plans, making soil erosion control equipment and material available to landowners and administering soil conservation projects. Each district receives limited funds from the state and federal government and sometimes from the Boards of County Commissioners to cover administrative costs.

In Minnesota, at the state level, agricultural activities that can cause sedimentation can be abated under the state's general water quality guidelines and regulations. Local units of government have the authority to pass their own sediment control ordinances. Soil and Water Conservation Districts have a specific grant of authority through their enabling legislation to assist in developing comprehensive plans for conservation of soil and water resources. They have no authority to enforce the plan. SWCD's, with cost share and technical assistance from the U.S. Soil Conservation Service, assist farmers in carrying out conservation plans.

In New York, there are two special purpose districts that have the authority to control erosion from farming activities: Soil and Water Conservation Districts and Regional Water Resources Planning Boards. SWCD's have a variety of planning and implementation powers, including providing assistance to landowners in preparing and reviewing erosion and sediment



control plans. Every individual with a rural holding of over 25 acres must prepare an individual conservation plan by 1980. There are no provisions in the law penalizing individuals for non-compliance.

Regional Water Resources Planning Boards are responsible for preparing a comprehensive water and related resources plan. None of these Boards receive state funds, and their activities are limited to voluntary efforts. Local units of government have the authority to pass their own sediment control ordinances.

In Ohio, the Department of Natural Resources (DNR) has proposed legislation that would strengthen the control of sediment in the state. The proposed legislation would empower the DNR to establish rules and procedures for administration and enforcement of an agricultural pollution program. The DNR will enter into cooperative agreements with Soil and Water Conservation Districts to obtain compliance with its rules and orders, provide services and implement a state cost share program.

At the local level, Soil and Water Districts assist landowners and operators in meeting established soil and water conservation standards through technical assistance and education services.

In Pennsylvania, the Department of Environmental Resources (DER) has the authority to control erosion from farming practices under the Clean Streams Act. This Act makes the DER responsible for regulating any activity which creates a danger of pollution or has a potential for pollution. The Department conducts information, training, administrative and liaison activities while the Soil Conservation Districts act as agents for DER providing information, assistance in developing and reviewing conservation plans and maintaining land use. Districts now seek compliance on a voluntary basis, but they can be delegated full enforcement powers.

In Wisconsin, the Department of Natural Resources is studying pollution problems related to sediment control through its nonpoint source program. They are hopeful that this program will identify the parameters which must be controlled in regard to agricultural erosion, so that controls can be developed.

There are two special districts that have potential power to control erosion from farming practices: Soil and Water Conservation Districts and those agricultural uses which fall within an Inland Lake District.

Soil and Water Conservation Districts have the authority to control land use. However, to adopt land use controls, the Districts are required to have the proposed ordinance pass a referendum and be approved by the County Board. Only one SWCD has been successful in passing an ordinance controlling land use. The District is not in the Great Lakes Basin. SWCD's are thought to be the best institutional structure to strengthen sediment control in Wisconsin in that the Board of Directors of each District is made up of elected officials who have direct access to the elected power within the county.



A special demonstration project in Washington County is developing a model ordinance intended to improve the abilities of Soil and Water Conservation Districts to pass sediment control programs. It is being based on the Shoreland and Flood Plain Zoning Program, which requires that the State provide an overall management plan and implementation guidelines for local jurisdictions. The local jurisdictions are responsible for developing and implementing control ordinances within the state requirements. If implemented, the Soil and Water Conservation Districts will still lack sufficient manpower to assist farmers in developing sediment control plans and implement them.

The Inland Lake Protection Districts are of limited use in sediment control from agricultural sources in that they normally cover areas of residential development in and around a lake and very little agricultural land is included in them. For those lands that are included, they cannot provide direct regulation of agricultural activities to control sediment, but with cost sharing and technical assistance features, they can work with farmers to develop plans to control sediment and assist in plan implementation.

It is the Contractor's evaluation that the combination of the nonpoint source pollution control program and the Washington County Project should give the State of Wisconsin a comprehensive look at its sediment control problems, and should provide draft legislation for sufficient authority to control sedimentation.

### Drainage

Drainage has been the responsibility of local or special district units of government. The major objective of drainage has been to drain wet agricultural land. Sediment is suspended in the water drained, but an efficient drain will settle out the sediment. Conflicts arise when a ditch must be maintained or reconstructed to enable it to carry drainage effectively. Dredging the ditch destroys the aquatic habitat and can cause sedimentation, which impacts water quality. This is a conflict of use, aquatic habitat drainage, and sometimes the two uses are incompatible

There has been comparatively little construction of new open drains to bring new land into production in the Great Lakes Basin in the last 25 to 30 years, and virtually none in recent years. The Federal role in drainage relates primarily to technical and financial assistance for construction of field ditches and subsurface drains to make existing cropland more productive and to reduce the flood hazard.

The Federal Watershed Protection and Flood Prevention Act may have beneficial water quality effects since measures which encourage the filtering of water through the soil are required, rather than water washing off the surface and carrying sediment and sediment associated contaminants, such as phosphorus, into streams.



The Federal Water Bank Act provides financial assistance to landowners in specific wetland areas to keep wetlands in their natural state rather than draining them.

Problems associated with drainage were not analyzed for the state of Illinois.

In Indiana, County Drainage Boards under the Drainage Code have the authority to control and regulate changes within a drainage area which can alter drainage characteristics. The intent of the code was to drain wet agricultural land; thus, any effects that act to limit the deterioration of water quality are indirect. Some of the county drainage boards do not require erosion control practices such as bank seedings and erosion control structures. This is particularly true where Federal cost-share funds have been utilized to implement the erosion control practices. Drainage factors are also considered by SWCD's when preparing soil conservation plans.

Towns, cities, counties, and planning commissions all have a variety of powers which allow them to regulate land uses and types of structures built. These powers may also be used to prevent deterioration of water quality caused from drainage.

In Michigan, the DNR is responsible for all waters of the state, including waters in legal drains. Local drains are the responsibility of elected County Drainage Commissioners. Intercounty drains are operated by a Board of Commissioners made up of the County Drain Commissioners of the affected counties and chaired by the Deputy Commissioners for Intercounty Drains of the Michigan Department of Agriculture. Elected Drain Commissioners have the authority to develop plans, maintain drains, and charge the costs to benefiting owners for the maintenance and construction of the drains. The programs of the Drain Commissioners are directed toward maintenance of drains for agricultural purposes--not toward water quality. Most counties have either no inspection program or a very small one.

In Minnesota, New York and Ohio, local units of government have the responsibility and authority to regulate drainage areas through a variety of planning and zoning powers. These powers may indirectly act to prevent deterioration of water quality caused from drainage. SWCD's consider drainage factors when preparing erosion and control plans.

In Pennsylvania, local jurisdictions have a variety of powers to regulate land use and the types of drainage structures built which indirectly act to prevent deterioration of water quality caused by drainage. Soil Conservation Districts have the expertise to assist in solving drainage problems. Drainage practices are factors considered when approving a plan for development and in issuing a permit to allow earth disturbing activities.

In Wisconsin, the Department of Natural Resources is responsible for all waters in the state. Local drains are controlled by Drainage districts appointed by the County Board of Commissioners. Drainage districts do not



directly consider water quality problems, with the exception of a requirement that calls for environmental review by the Board of Directors when creating a district or approving the construction of drainage works. Through this requirement districts can be used extensively for water quality purposes. In most cases, they function as they were originally created years ago--for the drainage of agricultural wetlands.

## LIQUID, SOLID, AND DEEPWELL DISPOSAL

### Solid Waste

The control of solid waste disposal has been for a long time the responsibility of local agencies--primarily local health departments. In the past decade, there has been a trend whereby the state and federal governments have been participating in the control of solid waste disposal.

At the Federal level, the Resource Conservation and Recovery Act (RCRA) makes EPA responsible for providing technical and financial assistance for the development of management plans and facilities to recover energy and other resources from discarded materials, and for the safe disposal and discard of solid wastes and the management of hazardous wastes. The act requires EPA to promulgate rules establishing the standards relating to the transportation, treatment, storage and disposal of wastes. States must develop control programs within the EPA standards and receive EPA certification to operate their program. Upon certification, funding assistance is granted to the state. All of the eight states in the Great Lakes Basin are working toward complete compliance with the RCRA's requirement controls. The level of implementation varies from state to state. Water Quality Management Plans are required to address residual waste management. The Plans will identify the amounts of wastes that will be generated, methods and sites for their disposal, controls necessary for certifying new sites and the institutional structure, and resources necessary to insure proper implementation.

The problems associated with solid waste disposal were not analyzed for the state of Illinois.

Final approvals for construction and operation of landfill facilities are made by the Stream Pollution Control Board in Indiana based on standards for constructing and operating a landfill developed by the state.

Regional Water and Sewer Districts also have the authority to address solid waste problems. They are authorized to finance, construct, and operate waste collection and treatment facilities. Few, if any, districts are currently active in this area. Most districts have focused on bringing sewage treatment services to unincorporated areas and have funding limitations that reduce their ability to address solid waste problems.



Local units of government are actually responsible for operating, constructing, installing, and acquiring solid waste disposal facilities. Local health departments are responsible for inspecting each site.

In Michigan, the Department of Natural Resources has the authority to regulate the disposal of solid waste and hazardous wastes. The Department, in cooperation with county health departments, is responsible for licensing disposal sites and refuse transporting units. Licenses are issued based on DNR minimum guidelines for approval. DNR and local health departments have the responsibility for inspection of landfill site and transport operations. Current manpower at both levels of government is inadequate to implement the program.

The authority to regulate solid waste disposal in Minnesota is divided between the Minnesota Pollution Control Agency (MPCA) and local jurisdictions. MPCA is responsible for setting standards for promulgating regulations for solid waste disposal, resource recovery, source reduction, and hazardous waste management programs. Regulations are being drafted for the identification, labeling, classification, storage, collection, transportation, and disposal of hazardous wastes.

The Agency issues permits for solid waste disposal facilities, transfer stations and resource recovery facilities. It reviews only those applications for facilities consistent with the approved county solid waste management plan.

State solid waste regulations require that all permitted sanitary landfills have an approved groundwater monitoring system. About 80% of the permitted sanitary landfills in the State have operational groundwater monitoring systems providing quarterly reports on the quality of groundwater "upstream" and "downstream" from the disposal area. The remaining sites are under review. Additional facility surveillance is achieved through review of monthly operational reports.

Large quantities of hazardous wastes are being generated in Minnesota, and the handling and disposal of these dangerous materials is uncontrolled. The Agency is developing a tight control program.

Resource recovery facilities require a large volume of solid waste for proper operation and to be economically feasible. There is presently no mechanism to guarantee that a resource recovery facility will be able to obtain the necessary volume of solid waste, or to require haulers to deliver solid waste to established resource recovery facilities.

Solid waste management is the responsibility of local government in New York. The State's role has been to assist municipalities (technically and financially) as well as establish planning regulations and enforcement of solid waste activities. Unfortunately, the Department of Environmental



Conservation's resources do not allow the Department to assist communities in implementing their plans, except to a limited extent. Furthermore, there are serious manpower shortages, particularly with regard to inspection of landfill operations. It is unlikely the State will appropriate additional funds in the near future.

In Ohio, the authority to regulate the disposal of solid waste is divided between the Ohio Environmental Protection Agency, local health districts and other units of local government. OEPA is responsible for overall operation of the State's solid waste management program. The Agency promulgates regulations and standards which detail procedures for the licensing of solid waste disposal operations and other procedural regulations for local health departments. The Agency's activities include issuing licenses, making on-site inspections and developing a statewide solid waste management plan.

Counties and municipalities and towns have the authority, by resolution of their legislative bodies, to provide for the collection and disposal of garbage and refuse and make appropriate regulations for the construction, protection, maintenance and use of disposal and collection, recycling or resource recovery facilities. In general, the powers of municipalities are much broader than towns or counties due to home rule, although statutory powers are similar. Health districts are responsible for licensing and inspecting solid waste disposal sites and facilities. Of the 162 health districts in Ohio, 92 were issued licenses in 1975.

In Ohio, resource recovery activities may be practiced by general purpose governmental units, or through the creation of special authorities, by the private sector, or a combination of the public and private sectors. Ohio has established an independent State agency, the Ohio Water Development Authority (OWDA), that is self-financing and self-governing and within certain limitations may carry out resource recovery activities. Hazardous wastes are not currently controlled, but legislation is being developed that would provide for a coordinated and comprehensive program.

In Pennsylvania, the Department of Environmental Resources has both planning and regulatory authority over solid waste disposal. The Department may provide technical assistance and pay up to 50% of the required county and municipal costs of preparing solid waste plans, studies, surveys and research. County and municipal plans must meet DER rules and regulations regarding transport, storage, collection and disposal of solid wastes. DER issues permits to use land for solid waste processing or for a disposal area of a solid waste management system. A license is also required to transport and dispose of solid wastes in a mine.

DER is also responsible for administering the State's resource recovery program. It is a financial incentive program designed to assist municipalities in developing resource recovery systems. Unfortunately, shifts



in financial priorities have resulted in the necessary funds being cut back to implement this program.

In Wisconsin, the Department of Natural Resources conducts the State's solid waste management program. The Department is responsible for establishing minimum standards for the location, design, construction, operation and maintenance of solid waste disposal sites and facilities. It requires the annual licensing for the operation of solid waste facilities with emphasis on the technical adequacy of the site and facility design. In addition, the Department issues compliance orders, makes referrals, and conducts an education and training program.

Counties have the authority to establish solid waste management plans and systems alone or jointly with other local jurisdictions and are encouraged to take a regional and a planned approach to solid waste management. Cities and villages regulate landfills within their boundaries and one-and-one-half miles of the corporate limits through planning, zoning and subdivision powers of the respective general purpose governments. The Shoreland and Flood Plain Zoning Program prohibits solid waste disposal sites and facilities within areas under the program jurisdiction unless permitted by the DNR. Solid waste is also controlled through the authority provided to Metropolitan Sewage Districts (MSDs), Joint Sewerage Commissions and Town Sanitary Districts. All of these special districts have the authority to plan, construct, operate, acquire, and maintain solid waste facilities.

The Solid Waste Recycling Authority functions as a centralized body to handle development, design, financing, construction and operation of solid waste resource recovery systems. The goal of the Authority is to provide for the maximum recycling of solid waste.

DNR's Solid Waste Management Program has adequate staffing to regulate solid waste management activities in the State. The staff is an aggressive one which completes the yearly relicensing of all solid waste disposal facilities. The DNR is also increasing its education and public information programs to alleviate this problem.

The management of hazardous wastes is the largest current solid waste management problem in the State. While technology other than land disposal often exists in order to adequately process or dispose of hazardous wastes, the overall coordinated approach to regulating and managing the wastes, and hence to ensuring use of technological alternatives, does not exist. Some limited State controls currently exist, and background information is being developed as part of the nonpoint source study. However, existing laws and enforcement programs are inadequate in providing for the necessary coordinated and comprehensive program needed to deal effectively with the entire scope of the problem.



### Liquid Sewage Disposal

The control of liquid sewage sludge involves the hauling of the sludge from its generation site to its ultimate disposal site and the actual disposal of the sludge itself. The Federal government, through the Water Quality Management Planning Program, requires all state and areawide agencies to develop programs to address liquid sewage sludge disposal plans. This program is still in its development phase, which is scheduled for final completion no later than November 1978. Implementation is expected to begin as soon as solutions are developed. The Federal Sewer Facilities Construction Grants Program requires that sludge management plans be developed when federal monies are being used for construction of a new or renovation of an old sewage treatment plan.

All local general purpose governments have indirect control through their zoning and subdivision authority, which allows them to approve the site for a disposal area and to place that site in an area that they find least offensive. These areas are usually not determined on environmental grounds but on public nuisance grounds, and in practice these powers are more frequently used to stall the development of disposal sites.

The problems associated with the disposal of liquid sewage sludge were not examined for the state of Illinois.

In Indiana, regulations for the disposal of liquid waste are promulgated by the Stream Pollution Control Board (SPCB). Permits for industrial land disposal sites are also issued by the SPCB. There are no specific guidances or standards formulated for land application of liquid sewage sludge. Industrial waste haulers are licensed by the state, but unfortunately, due to the lack of staff, the haulers' program is not enforced.

In Michigan, there are no controls for the disposal of sewage sludge. However, haulers of industrial liquid waste are licensed by the DNR. The Department is responsible for reviewing trip records of haulers and inspecting the hauling equipment. Deficiencies exist in the control of disposal of sewer system liquid sludge wastes. The control of transport and disposal of industrial liquid waste is adequate.

In Minnesota, the Pollution Control Agency has the authority to regulate the disposal of liquid sewage sludge. The Agency is responsible for establishing standards for acceptable sludge disposal facilities and practices, and for reviewing and approving all land application projects. To date, MPCA has promulgated guidelines to aid municipal officials, engineers, and plant operators in implementing acceptable sludge disposal facilities and practices and has provided land managers with recommendations concerning site management and usage. The guidelines also provide Agency staff with criteria to aid in the review and approval of land application projects. These guidelines limit sludge application rates to levels consistent with fertilization and soil conditioning.



In New York, haulers of industrial wastes must be registered. Haulers must report the location of pickup and disposal. New York requires that land treatment be approved by the DEC. The DEC operates on a case-by-case basis, giving consideration to field topography and soil characteristics, climatic conditions, crops to be utilized, and water balances. The State does not approve systems that allow runoff to surface waters.

The Ohio Environmental Protection Agency (OEPA) and the local health departments or districts are involved in regulating the disposal of liquid sewage sludge. The OEPA has not established a standard policy position on the accepted disposal practices but treats the approval of each sludge disposal procedure on an ad hoc basis. OEPA has the overall responsibility of reviewing and approving and issuing permits for the land application on sludge. Under recently proposed regulations, the requirement for a solid waste permit if landfills are used for sludge disposal would be reaffirmed. At the local level, health departments or districts act to enforce OEPA solid waste regulations and permits. If land application is used, the regulatory function is the responsibility of the OEPA district offices.

In Pennsylvania, the Department of Environmental Resources is required to approve and issue permits for the operation of land application techniques. A manual of guidelines has been prepared and includes standards for site selection, systems operation, and installation of equipment. Haulers of industrial wastes are not required to obtain a license in Pennsylvania. There is a need for better implementation including increased enforcement, improved and new methods of disposal, and the licensing of haulers of liquid wastes.

Current control of liquid sewage sludge in Wisconsin is only in flood plain and shoreland areas through the Shoreland and Flood Plain Zoning Program. DNR has issued a set of internal rules for sludge management. These rules require the owner of a wastewater treatment plant to develop a sludge management plan which can be amended from time to time. The plan should include information on storage, a description of sludge characteristics, and the ultimate disposal site. The DNR evaluates and approves the sludge management plans. These rules are still very new so it is difficult to determine how effective they will be and if additional controls will be needed. They should, however, provide DNR with a much more comprehensive information base, so that refinements or additional controls can be developed, if needed.

#### Private Sewage Disposal

Traditionally, the control of septic systems has been a function of local health departments, which reviewed the plans and the installation of septic systems from the standpoint of human health. These local programs usually require that prior to the installation of a septic system, the health department would have to approve the plans for the system, including



the percolation rate of the soil in which the system was to be placed. Then, the local health department would make one or more inspections of the installation of the septic system. The Contractor was not able to identify any local areas that had the staff resources to return to existing septic systems and test them for proper operation and provide homeowners with a maintenance program for their septic systems. However, in discussions with state and local officials, all agreed that such a monitoring program of operation and maintenance is essential to the proper control of septic systems.

One of the largest single "local" water pollution problems is failing septic systems that were improperly installed or are just failing due to age. Pollution problems from septic systems often occur and are most pronounced when the population density becomes too great and the capacity of the soils to treat septic effluents is exceeded.

The Federal Water Quality Management Planning Program requires that management plans include the control of private sewage disposal systems; therefore, upon the completion of these plans, most states will have implementable management programs to control private sewage disposal systems.

Several other acts authorize federal agencies to administer grants for comprehensive planning activities which impact private sewage disposal by identifying either (1) where collector systems should be built, or (2) where it would be acceptable to install private disposal systems in terms of soil and water table.

The study did not examine problems with regard to private sewage disposal in the state of Illinois.

The regulation of private sewage disposal systems or septic tank systems in Indiana is a power and responsibility of the local county health boards. They have the power to adopt regulations and ordinances which control private sewage disposal systems. The State provides technical assistance and has developed septic systems.

The County Health Departments are generally poorly funded and have minimum staff resources available to administer a thorough and rigorous regulatory program for septic tank systems. The operating budgets for county health departments are controlled by the County Council. The Sanitarian's job is appointive; thus, the administration of the regulatory program is subject to political influence or pressures. And while professional sanitarians are licensed according to a set of standards, it is not required that the position of "County Sanitarian" be filled by a professional sanitarian.

In Michigan, the Department of Public Health has developed a model sanitary code for local health departments. DNR is responsible for



licensing all persons and vehicles engaged in the cleaning and servicing of septic tanks.

Local health departments regulate the construction and maintenance of septic tanks through their authority to adopt sanitary codes. The strictness of these codes varies from county to county. In general, it appears that a local health department provides a reasonable level of review prior to the construction of a septic tank. Post-construction surveillance, however, is not widely performed. Although these deficiencies are largely attributed to the financial constraints of local health departments, there are no existing guidelines which require local health departments to fulfill this ongoing monitoring function.

In Minnesota, the Department of Health, the Pollution Control Agency and local jurisdictions are involved in regulating private sewage disposal. The Department of Health has set standards for septic tank systems, which require all new and existing systems must be brought up to these standards by July 1, 1977 in unincorporated areas and by 1980 in incorporated areas. These requirements have been very successful in controlling the location, construction, and use of individual systems on new lots and developments. There have been problems, however, in the older, existing lots which may have an inadequate septic tank or improper soil.

The MPCA staff is working with a 46 member Citizens Advisory Committee in the development of statewide, technical standards governing location, construction and use of individual systems. These Agency standards are intended to provide alternative systems which can be used in areas where the traditional septic tank system will not function properly. The application of these standards to the estimated 10,000 septic tank systems installed in Minnesota each year will be an important area of involvement for the MPCA the next several years.

Localities have the authority to adopt codes or ordinances which regulate private sewage disposal systems. A wide range of county programs and ordinances attempt to control the location of individual sewage treatment systems. A lack of uniform enforcement has resulted. Some counties have very good programs with excellent administration; some have no ordinance and/or no trained personnel.

In New York, local units of government have authority and have passed ordinances controlling the installation of septic systems. The DEC controls the haulers of septic sludges through a statewide permit program. The implementation of both of these programs is weak because of understaffing.

In Ohio, the Department of Health jointly with local health departments or districts has the authority to regulate private sewage disposal systems. The Department promulgates regulations which establish minimum standards governing design, construction, location, reconstruction, operation and installation of septic disposal systems. It also details minimum standards governing the issuance of permits for the installers and clearers of septic disposal systems.



Local health departments or districts are responsible for enforcing the State standards for septic disposal and may enact more stringent provisions when, in their estimation, conditions in their district warrant them. The principle of home rule is very strong in Ohio; thus, many districts have optioned for local variations in their code. Implementation is a problem with local health departments which are understaffed.

In Pennsylvania, the Department of Environmental Resources develops rules and regulations for certifying sewage enforcement officers. The Sewage Enforcement Officer (SEO) is the only person who can issue a permit to install an on-lot sewage disposal system. The officer is certified by the DER and designated by municipal ordinances as the SEO for the municipality or local agency having jurisdiction in the area.

Each municipality is required to submit to DER for approval an officially adopted plan for sewage systems within its jurisdiction. Each plan must cover existing sewage systems in detail, proposed sewage systems (within the next 10 years), and where no systems exist or are proposed, the plan must include a land classification system to prevent on-lot sewage disposal systems from being installed where soils are not suitable. Provisions are made for grants to help with such planning. When the Plan is approved by the Department of Environmental Resources, the local agency has the responsibility for administering its program, including accepting applications for sewage system permits, inspecting proposed sites, reviewing proposed plans and issuing or denying permits.

The authority to regulate private wastewater disposal in Wisconsin is divided between the Department of Natural Resources, the Department of Health and Social Services, and local jurisdictions.

The Department of Health and Social Services is responsible for establishing and enforcing reasonable uniform Statewide standards, including the sizing, siting, and design criteria and the submittal of soil test plans and specifications.

The Department of Health and Social Services must review and approve all unsewered subdivision plans for compliance with the Septic System Code. This review looks at general soil and site information in terms of suitability of the soils to handle septic systems.

In addition, a State septic tank permit must be obtained before buying or installing a septic tank. The Department of Natural Resources may prohibit the use of septic tanks in any area of the State where it finds that it would impair water quality. If prohibited, the Department must recommend alternate methods of waste disposal. The State septic tank permit serves only as a bookkeeping function, and must be issued upon the receipt of a permit application and a nominal fee.



## TRANSPORTATION CORRIDORS

The control of runoff from transportation facilities varies widely. Most of it is oriented toward highways and airports, with the only requirements on other types of facilities being for the preparation of an environmental impact statements.

All states are required to implement programs responsive to the Federal Highway Administration's Erosion Control Program. The program only applies to state and county roads which receive federal funding. In addition to this program, only Pennsylvania and Michigan have controls on all roads regardless of funding source. All these programs deal primarily with the construction of roads and not with their operation and maintenance, although Minnesota has controls over the use of salts. This is an area where the Water Quality Management Planning Program requires the development of management programs to insure the proper development of controls.

The FAA has requirements for erosion control in the construction and improvements to airports. All states which receive FAA funding are required to adhere to these FAA controls.

The study did not examine problems related to transportation corridors for Illinois.

In Indiana, the State Highway Commission is responsible for ensuring all State and county roads which receive federal funding provide for control of runoff and erosion. Enforcement is by resident inspectors employed by the State. Public use airports receiving FAA funding must also comply with runoff controls.

In Michigan, the Department of Transportation ensures compliance with FHWA's erosion control specifications.

Under the Soil Erosion and Sediment Control Act, all earth moving activities are regulated in the state. This includes the construction of roads and other transportation facilities. The Michigan Department of Natural Resources is responsible for administration of the Act, which requires erosion controls during construction, and early mulching and planting of cuts and ditches, which will reduce subsequent erosion. While it is not possible to tell how beneficial these measures will be, it is generally anticipated that at transportation construction sites erosion will become a less important source of sediments in the future.

In Minnesota, the Department of Transportation ensures compliance with FHWA specifications. There is no working relationship with MPCA and Minnesota DOT to control runoff from highways. Salting is controlled by a statute which applies to all localities and limits the use of salt on curves, hills and bridges.



In New York, there is a Memorandum of Understanding Between the New York State Department of Transportation and the New York Department of Environmental Conservation that establishes a base of authority from which to control runoff from transportation corridors. The agreement stipulates that there be continuous cooperation between the State DOT and the State DEC throughout the development, evaluation, and implementation of programs and projects which are promulgated under the legislative authority of the respective agencies. Each agency furnishes the other with copies of its long-range plans for the improvement of facilities and services under its jurisdiction and copies of its current capital program and scheduled maintenance program.

The Ohio Department of Transportation oversees those aspects of highway construction which impact water quality, principally sediment control. Guidelines for sediment control are promulgated in Ohio DOT. These guidelines must be followed in construction of any local highway where federal funds are used. All airport facilities using federal funds must provide for the control of runoff and erosion as set by FAA standards.

In Pennsylvania, the Department of Transportation is responsible for developing programs assuring adequate, safe and efficient transportation. With regard to erosion, the Department is responsible for ensuring that all state and county roads which receive federal funding provide for control of runoff and erosion as specified by FHWA regulations. Public use airports receiving FAA funding are also subject to runoff controls.

DER is another agency, through its general grant of authority, which has the ability to regulate runoff. Any developer who wishes to construct an airport is required to obtain a permit where his earth moving activities affect 25 acres or more.

In Wisconsin, FHWA specifications are enforced by the Wisconsin Department of Transportation through their contracting procedures for highway construction. The state has no regulations which specifically focus on control of runoff from transportation corridors.

#### SHORELINE LANDFILLING

The land use activities identified as possible sources of pollution in shoreline landfilling are construction along the shoreline and dredging. The Federal government has two acts which require state and local governments to control pollution from the land use activities on the shoreline. Under the Coastal Zone Management Act, states, in cooperation with local governments, develop management programs including regulations to insure that development in the coastal zone of each state is completed in an environmentally sound manner, and that such development does not create erosion problems that are detrimental to the activities of man. The Water Quality Management Planning Program requires local jurisdictions and states to develop management plans for the control of pollution in all areas, including the shoreline area.



The second section applicable to shoreline activities is Section 404 of the 1972 Federal Water Pollution Control Act. It authorizes the Corps of Engineers (COE) to issue permits to all public and private agencies wishing to conduct dredging and filling activities in any navigable water. States who desire to administer their own individual and general permit program may do so if approved by EPA. Federal guidelines that list requirements for application and approval have not been published.

Under the operating program, COE is required to provide for the consideration of all public concerns environmental, social and economic--in the decision-making process--to either issue or deny permits.

Along with the discharge of material which has been dredged or excavated from any waters of the United States, the following types of activities are also regulated by this program: site development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection and/or reclamation devices; beach nourishment; levees; sanitary landfills, and backfills required for the placement of structures such as sewage treatment facilities.

All the states in the U.S. Great Lakes Basin are in the process of developing their Coastal Zone Management programs, and Water Quality Management Plans. These plans will be complete in 1978. The development of these plans under federal regulation will insure a comprehensive approach to the control of pollution from shoreline landfilling activities.

All states currently have state laws which require that dredging receive a state permit; and, in the case of Wisconsin and New York, an environmental impact statement is also required. All states are making varying degrees of effort in coordinating their dredging permit program with that of the Corps of Engineers.

The Illinois Department of Transportation is the lead agency in regulating dredging and shoreline construction activities in the state. The Illinois Department of Conservation, the Illinois Environmental Protection Agency and the Illinois Pollution Control Board must also approve the dredging permit before it is issued. There is coordination, although not a specific written agreement, between the IDOT and the Corps of Engineers for their dual permitting program. The dredging program is working well, with adequate staffing and finances.

IDOT is also responsible for issuing permits for any construction that takes place along the shoreline or in the waters--such as bulkheads, piers, and erosion control structures. The control of construction activity along the shoreline will be strengthened by the passage of the Illinois Coastal Resources Management Act. This Act will be the basis for organizing units of government into a cohesive management system and developing a partnership of state and municipal governments. Municipal governments will be



required to develop a municipal management program that meets specific requirements developed by the state. The state will certify the municipal governments meeting those requirements. Financial assistance will be provided to municipalities for developing and maintaining their coastal management responsibilities.

In Indiana, the Natural Resources Commission has the authority to control dredging and land excavation activities. The Commission is responsible for issuing a permit for any construction, excavation or alteration in a floodway. The Commission is also responsible for making a comprehensive plan of flood control areas. The Commission is empowered to cooperate with the Army Corps of Engineers with regard to any flood control works.

In Michigan, the Department of Natural Resources and local jurisdictions can regulate dredging, and filling activities. Under the authorities provided in the Shorelands Protection and Management Act, DNR is responsible for establishing standards for localities to develop shoreland zoning ordinances. The localities must adopt shoreland zoning for hazardous and sensitive areas. The ordinances must meet DNR's standards and approval.

In Minnesota, dredging and filling operations are regulated by a Corps of Engineers permit program and must comply with the substantive state, interstate and local water quality standards and effluent limitations.

In New York the Department of Environmental Conservation has the authority to control dredging and land excavation activities through the Stream Protection Law. This Law provides the DEC with the authority to regulate activities affecting the beds and banks of unprotected streams, excavations and fills in navigable waters and construction of sizeable docks. Plans to disturb a stream or navigable waters will not be approved if the proposal causes unnecessary soil erosion or water pollution.

The Freshwater Wetlands Act regulates draining and/or dredging activities within any freshwater wetland. The Act calls for an inventory of freshwater wetlands throughout the state.

When the inventory is completed, a permanent regulatory program will go into effect. In the meantime, an interim program is in effect which prohibits anyone from conducting a "regulated activity" in a wetland without obtaining an interim permit. Permits are granted only if the applicant can demonstrate that a hardship would be suffered without the permit.

In Ohio, the Department of Natural Resources has authority to control dredging and land excavation activities through its operation of a permit program for dredge-and-fill projects. The Department is the liaison contact agency within Ohio for all Corps of Engineer projects.

In Pennsylvania, the Department of Environmental Resources has authority for issuing permits to carry out dredging construction or excavation activities along the shoreline.



The Water Obstruction Act also provides DER with a regulatory tool to control shoreland filling activities. The Act prohibits construction of any water obstruction without first obtaining a permit from DER.

In Wisconsin, land disturbing activities along the shoreline are controlled at the state and local levels. The State has control through the Shoreland and Flood Plain Zoning Program and the Public Inland Lake Protection and Rehabilitation Program. The programs allow the state to control shoreline activities through the development of standards, the provision of technical and financial assistance, and the assurance that the responsible local units of government will enforce the programs. The local units of government which implement the Shoreland and Inland Lake Programs have direct planning and indirect controls over activities along the shoreline.

The Corps of Engineers and DNR are responsible for approving and issuing permits to conduct any dredging activities. DNR requires an environmental impact statement be written and approved before it will issue a dredging permit. The control of construction, land excavation, and dredging activities on the shoreline is one of the State of Wisconsin's stronger programs.

#### EXTRACTIVE OPERATIONS

##### Pits and Quarries

There are no direct Federal controls over pit and quarry operations. The control of these activities has traditionally been a function of the states, with a minimal local input. Under the Water Pollution Control Act Amendment of 1972, as amended by the Clean Water Act of 1977, designated state and local agencies are responsible for development of best management practices for extractive operations.

The U.S. Geological Survey also provides topographic and geological information to local governments as it relates to mining operations.

Problems with regard to pits and quarries were not examined for Illinois.

In Indiana, pollution problems from sand and gravel quarry operations are minimal. Operators are not required to obtain a permit to engage in sand and gravel and quarry operations except when those operations are located within a floodway. In those cases, permits are issued by the DNR. Discharges from sand and gravel operations, quarries, and mines must be approved by the SPCB.

Michigan's control over pits and quarries is limited to requiring operators of pits and quarries who discharge to have a NPDES permit.

In Minnesota, New York and Pennsylvania, pits and quarries are regulated by the same authorities and statutes described in the mining section.



Minimal water quality problems are generated as a result of a pit and quarry operation in Ohio. The state does not control this activity.

In Wisconsin, there are no programs to control pit and quarry operations in terms of nonpoint pollution sources. While there are some localized problems with pits and quarries, it is not a significant problem. All operators who discharge are required to have a NPDES permit.

### Mining

The control of mining activities has traditionally been a function of the states with minimal local input.

Federal controls do exist over surface mining. The Surface Mine Reclamation Act of 1977 establishes a program to regulate surface mining including providing technical assistance, and a program to reclaim abandoned mines. The Water Pollution Control Act of 1972, as amended by the Clean Water Act of 1977 requires the development of best management practices for extractive operations. Implementation of the best management practices will be through a permit system to be enforced through the states.

The U.S. Geological Survey also provides topographic and geological information to local governments.

Problems associated with mining activities were not examined for the state of Illinois.

In Indiana, mining activities are regulated at the state level by the Department of Natural Resources. The Department is responsible for issuing mining permits, approving reclamation plans, and inspecting mine sites. Under the law, backfilling and grading of strip and surface mining areas is required. Additionally, peaks and ridges must be graded when adjacent to public highways and dams. Bonding is also required to insure reforestation and revegetation for sediment control. Mines are inspected after the area has been mined and restored. The bond is released at this time if the area is satisfactorily reclaimed.

In Michigan, mining activities are regulated at the state level through the Mine Reclamation Act of 1970. This Act applies to all open pit and surface mining, excluding sand and gravel, peat, and clay operations. The DNR is responsible for investigating mining activities prior to installation, establishing regulations and issuing mining permits.

Soil erosion controls are also required through the Water Resources Commission Act, which requires the Michigan Water Resources Commission to control pollution of any surface or underground waterways in the state. This includes the regulation of pollution from mining activities. Action by the Water Resources Commission is typically initiated as a result of public complaints or the findings of special State studies.



In Minnesota, the Department of Natural Resources is responsible for the administration of the State's mine reclamation program. The 1973 Mine-land Reclamation Act requires the reclamation of all currently active and any future metallic mine in the state. The Department is also responsible for promulgating regulations, issuing permits to mines and reviewing mine reclamation plans. The regulations for mine reclamation have not yet been drafted.

In New York, all surface mining is regulated by the Department of Environmental Conservation. The Department is responsible for issuing mining permits. The Department also establishes standards for mining practices, reviews reclamation plans and approves annual reclamation permits. In addition, the Department is responsible for inspection.

To assist small operators and local governments in the implementation of the Acts, the Mineral Division has made an agreement with SCS to provide technical assistance. Currently, there is no control over old abandoned mines and they do not contemplate developing controls for them. This is primarily because they cannot fund the current program and they are not sure of the best way to control the pollution sources from old mines.

In Ohio, coal mining and the reclamation of mined land are regulated by the Department of Natural Resources, Division of Reclamation, which is responsible for issuing mine permits. The permit application requires that both a plan for the mining operation and a plan for reclamation of the mined area be submitted for approval. If the application is accepted, the applicant must post a bond to assure compliance with the approved plan.

In Pennsylvania, mining activities, which include all extractive operations--coal, clay, stone, gravel and other materials--are regulated by the Department of Environmental Resources. The Department is responsible for establishing standards for covering all aspects of mining from operation to reclamation. It is also responsible for issuing permits to conduct mining activities and licensing operators and inspecting sites. Pennsylvania's strip mining laws and regulations are considered the strongest in the nation.

Until recently, there has been very little mining activity in Wisconsin. However, recent discoveries of large amounts of zinc and copper in Northern Wisconsin could lead to significant water quality problems as they are developed.

In response to the recent mineral finds, the State Legislature has enacted the Metallic Mineral Mining and Reclamation Act. The act makes the Department of Natural Resources responsible for developing standards and a comprehensive permit program covering all aspects of metallic mining from prospecting to the reclamation of the land at the conclusion of mining activities. In addition, the DNR and the Geologic and Natural History Survey are developing a comprehensive state program identifying mineral



resources and their zones of location, and financial incentives to insure the proper development of the mineral resources with the greatest degree of environmental protection and reclamation.

#### Brines from Oil and Gas

There are no direct Federal controls over brines from oil and gas operations. However, the Safe Drinking Water Act, Part C, requires state regulation of the underground injection of wastes. This includes brines from oil and gas production if underground sources of drinking water are threatened.

The study did not examine problems associated with brines from oil and gas operation in Illinois.

In Indiana, oil and gas wells are regulated by the Department of Natural Resources. The Department is responsible for establishing standards and issuing permits for drilling, operating and abandoning wells. Additionally, it is charged with inspecting new drilling and plugging operations, prior to abandonment, during construction of new pits and upon receipt of a complaint.

In Michigan, oil and gas wells are regulated by the Department of Natural Resources through the Conservation of Oil, Gas and Mineral Act. The Department is responsible for issuing permits for drilling of oil and gas wells. It also provides technical assistance to complete permit applications. In addition, the Department carries out on-site field inspections during installation.

There are no oil and gas operations in the state of Minnesota. Consequently, further investigation in this area is unnecessary.

The plugging of oil and gas wells requires a permit in New York. All other operations can be completed without controls except for spacing requirements between wells.

In Ohio, the Department of Natural Resources supervises and regulates all types of oil and gas field operations. The Department issues permits which are required for all wells exclusive of those drilled for fresh water. The Department also issues permits required for plugging wells.

The DNR staff inspects and supervises the drilling and plugging of all oil and gas wells, and maintains a close lisison with oil and gas operators, municipalities and the general public. The inspectors make an average of 3.8 visits to a site during a construction of a well. Thereafter, unless a complaint is filed, they visit the well annually.



Gas and oil wells in Pennsylvania are regulated by the Department of Environmental Resources. The Department is responsible for issuing permits for drilling of new wells and monitors well operations. The Department also has the authority to issue leases for exploration and development of oil and gas wells on state forest and park lands.

Wisconsin has no controls on the disposal of brines from oil and gas operations.

### Recreation

Recreation related activities that have been identified as possible sources of nonpoint pollution include the use of pesticides, private sewer systems, and sedimentation runoff from specific types of recreational use. The reader is referred to the sections on pesticides and private sewer systems for a discussion of the controls on those respective activities. However, it should be noted that at the federal level, with regard to private sewage disposal, there are management practices to which the National Park Service and the National Forest Service must adhere in terms of the provision of sewage disposal the recreational areas that they operate.

The Water Quality Management Plans must develop plans which will control sedimentation runoff from specific types of recreational activities. These plans will be implemented at the local level.

The Federal government does have the authority to administer three programs which impact nonpoint source pollution generated from specific types of recreational uses. These are the Land and Water Conservation Fund Program, Resource Conservation and Development Loan Program, and the Coastal Zone Management Program. The Land and Water Conservation Act requires permits for specific types of uses in the National Park System, and grants to states for the planning, acquisition and development of outdoor recreation facilities. For the state to be eligible and to receive a grant, it must complete a comprehensive state outdoor recreation plan identifying where recreation activities will be pursued and what kind.

The Resource Conservation and Development Loan Program provides technical cost share and loan assistance to public agencies and others for public water-based recreation facility development. The program requires the development of a plan showing the development of a specific recreational area and that it meets federal planning standards for grant assurance.

The Coastal Zone Management Program, through its requirement for controls, will insure adequate control over recreational activity in the coastal zone areas of each of the states.



Recreational activities and development related to them have a very minimal impact on Illinois' lakeshore. The problems that do exist are localized in nature and generally can be corrected through increased emphasis on the operation and maintenance of recreational facilities. The implementation funding that is available through the Federal Coastal Zone Management Program will be used to improve the operation and maintenance of the existing recreation facilities.

In Indiana, there has been no detectable degradation of land and adjacent waters caused by recreational land uses. The development of regulations regarding recreational activities is not a high priority issue compared to other land use activities affecting water quality.

In Michigan, existing control of recreational activities that could impact water quality include: zoning and subdivision control powers, the Shoreland and Flood Plain Zoning Program, and the Coastal Zone Management Program. The Sediment Control Act also applies to development of recreational areas. This Act requires that the developer of the recreational area receive a permit prior to construction. There are no known requirements for the operation of a recreational area once it has been developed.

The Coastal Zone Management Program, administered by the DNR, is designed to assist local communities in controlling recreation activities so that the environment is not adversely impacted. This assistance is both technical and financial.

The Department of Natural Resources in Minnesota is responsible for regulating recreation activities in the state. The Department is responsible for preparing a detailed resource management plan for 20 major recreational units. These plans will determine the units' best recreational uses and how to best manage their resources. The Department has completed the requirement of classifying each of the units, and has prepared a summary of each decision for legislative review. Rules and regulations have been established for the administration of Natural and Recreational State parks. The Department is also responsible for administering the Wild and Scenic Rivers program. Under this program, management plans are prepared for rivers that are designated as wild and scenic.

Recreational activities in the state of New York are regulated by two agencies: the Adirondack Park Agency and the Department of Environmental Conservation.

The Adirondack Park Agency has legislative authority to carry out and regulate recreation within its boundaries. Most of the State parks and the developed areas of the APA have extensive water quality regulations controlling lodges, campgrounds and other facilities provided for the public.



The Department of Environmental Conservation (DEC), the APA and municipal governments, where appropriate, are responsible for protecting classified rivers from activities, i.e., recreational uses affecting the stream banks.

DEC and APA are required by law to make and enforce regulations necessary to manage, protect, enhance, and control land use in a corridor (up to one mile wide outside of Adirondack Park and one-half mile inside) along rivers designated in the State system.

The Stream Protection Law also provides authority to classify streams in terms of recreational uses. This Act requires that a permit be obtained for the crossing or use of the stream. Currently, there is no monitoring or enforcement of the activities of the permits that are issued.

In Ohio, the control of recreational activities falls under the more generalized controls given to the local units of government. These are the zoning powers of the general purpose governments, the building inspection programs, and the Soil and Water Conservation District's programs. Currently, there are no recreation land use activities creating major environmental problems in the state.

In Pennsylvania, there has been no significant degradation of land and adjacent waters caused by recreational land uses. The problems that do exist are localized and are related to specific types of activities--i.e., dirt bikes, snowmobiling, hiking. These problems do not occur throughout the year.

In Wisconsin, the control of pollution that results from recreational activities falls under the more generalized controls given to local units of government. There are zoning powers, shoreland and flood plain zoning, building inspection programs, and conservation programs of the Soil and Water Conservation Districts. No recreation land use activities are creating water quality problems.

#### LAKESHORE AND RIVERBANK EROSION

The Federal government has several programs which can control erosion from lakeshores and riverbanks. The Soil and Water Conservation Program administered by the Soil Conservation Service provides assistance to individuals and local units of government for reducing lakeshore or riverbank erosion from different types of activities.

The Flood Insurance Program administered through the Corps of Engineers and the Department of Housing and Urban Development requires state and local governments to develop laws restricting land uses in flood plains. The Flood Control Act authorizes funds for the construction of facilities to control floods. To receive these funds, jurisdictions must have passed laws restricting land use in flood plains. To assist in the implementation



of flood control projects, the Corps of Engineers maintains prime responsibility and provides educational and technical assistance services to local jurisdictions on how to control and prevent floods.

The Coastal Zone Management Act establishes the Coastal Zone Management Program, which requires each state to develop land use control programs along their coastlines. The implementation of the plans developed by the states, beginning in 1978, should result in a more uniform control of lakeshore erosion than currently exists. Currently, Indiana, New York, Ohio and Pennsylvania have no specific statewide control over the development of the lakeshore. These controls are left to the local jurisdictions through their planning, zoning, and subdivision control powers. The states of Michigan, Minnesota and Wisconsin all have Shoreland and Flood Plain Zoning Programs which require local jurisdictions to develop zoning programs which meet state standards and are approved by the states. These zoning programs control development activities in the shoreland and flood plain areas and are a model for the Coastal Zone Management Programs.

The Illinois Coastal Zone Management Program has completed a detailed study of shoreland erosion problems in Illinois. From this study, legislation was drafted (Illinois Coastal Zone Management Act) that would establish a partnership between state and local governments to control construction and land modification activities and thus reduce erosion along the shoreline of Lake Michigan. This Act is currently before the Illinois General Assembly.

There are two pieces of legislation in Indiana that provide authority to regulate lakeshore and riverbank erosion. They are the Flood Plain Management Act, and the Flood Control Act, as amended. Under the Flood Plain Management Act, the Department of Natural Resources has the authority to assist local governmental units in identifying and delineating flood hazard areas and to prepare a statewide Flood Plain Management Program. The Act gives local governmental units the authority to pass flood plain management ordinances.

Under the Flood Control Act, the Natural Resources Commission has the authority to adopt rules and regulations with regard to alteration of a natural or present water courses. Any person engaging in erecting or maintaining a floodway as a permanent resident must have a permit which is issued by the NRC.

In Michigan the responsibility for controlling lakeshore and riverbank erosion is divided between state and local governments. Authorities are derived from the Natural Rivers Act, local zoning and subdivision controls, Inland Lakes and Stream Act, the Shoreland Protection and Management Act, and the Soil Erosion and Sedimentation Control Act.

In Minnesota, the responsibility for regulating lakeshore and riverbank erosion is divided between the Department of Natural Resources, municipalities, and counties. Under the Shoreland Management Act, the Department of



Natural Resources (DNR) is responsible for promulgating standards and criteria regarding land use, subdivision, and development of shoreland areas. Local governments are required to adopt zoning ordinances consistent with the standards.

In New York, the Department of Environmental Conservation has the ability to control lakeshore and riverbank erosion through its work in flood hazard areas. However, the Department is primarily concerned with flood control work and any impact on water quality is indirect. The passage of a sediment control act should impact lakeshore and riverbank erosion. This category is also tied to the control of runoff and the adequate control of land use through zoning and subdivision authority.

In Ohio, erosion from the natural actions of a lake or river, and how to control it, has not yet been determined. This includes identification of the relationships between various different land use activities and their indirect impact on lakes and streams. Without such a determination, controls cannot be developed. The Contractor was unable to identify any specific controls for lakeshore or riverbank erosion in the state.

In Pennsylvania, the Clean Streams Act does give the state authority to control all activities in the vicinity of a stream so that specific permits must be obtained prior to any of man's earth moving activities that would impact on a stream or the lakeshore.

In Wisconsin, the erosion program for inland lakes is part of a general sedimentation control program for the lake. There is no differentiation made between lakeshore erosion and the erosion caused from land use activities within a lake district. This makes it virtually impossible to evaluate how effective the Public Inland Lake Protection and Rehabilitation Program is in controlling lakeshore erosion. The Contractor was unable to identify any controls for riverbank erosion in the state. The Shoreland and Flood Plain Zoning Act controls activities along the lakeshore so that erosion should be controlled.

#### FORESTED AREAS

State and local governments are responsible for management of their respective forested areas. Under the Water Quality Management Planning Program, state and local governments are required to identify water quality problems arising from silvicultural activities and develop controls to reduce water quality impacts resulting from these activities, i.e. cost share and tax incentive programs for woodlot owners. The Forest Service is conducting Water Quality Management Planning studies for National Forest lands. The Forest Service is also providing state and local units with technical assistance and training programs.



The National Forest Act controls the use, occupation, and cutting of timber in national forests. The U.S. Forest Service regulates these activities. Regulation is based on the concept of multiple use.

Grazing on federal lands is also controlled and is based on the concept of the highest use of the land as well as the multiple use concept and water quality is a minimal consideration. To graze livestock on federal lands, a permit is required which usually runs for 10 years. The permit identifies the locations, the seasons of use, and the land capacity for the grazing to be carried out.

The study did not address forest area activities for the state of Illinois.

In Indiana, the Department of Natural Resources has the responsibility of regulating forestry activities in the state. The Department is currently completing erosion studies to determine critical sediment loss from different forest practices. The focus of the Department's work has historically been on production rather than conservation of water quality. Most of the timber production occurs in southern Indiana.

According to state officials in Michigan, increases in the amount of timber cutting will not lead to serious increases in sedimentation. Michigan's forests are, in the first place, usually well-suited for logging operations. Their soils are generally not highly erodible. Furthermore, the size of individual clearcuts will probably decrease and be more carefully tailored to the landscape so that harvesting on state forests and, to a lesser degree, on private lands will be similar to federal guidelines, which call for a maximum of 25 acre cuts on national forests.

The greatest potential for sedimentation in Michigan comes from haul roads (especially at stream crossings) and skid trails. Although the harvest area itself is exempt from the provisions of the Soil Erosion and Sedimentation Act, haul roads to and from the area are subject to this law. The application of permit requirements of the Act is expected to provide better controls over the construction and maintenance of roads.

In Minnesota, forestry activities are regulated by the DNR. The Department is responsible for operating a forest products utilization and marketing program. It provides technical assistance and services to improve the utilization and marketing of Minnesota's forest resources.

Forestry activities in New York are jointly regulated by the Department of Environmental Conservation and local units of government. The Department sets timber cutting standards for good forestry practices which apply to private and public land. These standards look at forest areas as multiple use areas and they consider water quality. Woodland owners are not required to follow these practices. The Department also provides technical assistance to woodland owners developing management plans.



Local governments have the authority to adopt ordinances controlling timber cutting. Few ordinances have been adopted. Those that do exist are designed to control growth in newly developing areas by requiring permits for removing trees that exceed a designated trunk size.

In Ohio, the Department of Natural Resources is the lead agency in regulating forestry activities. The Department establishes guidelines for good forestry practices and operates a tax incentive program which provides woodland owners who agree to operate and maintain their property according to certain standards a 50% tax reduction. The owners are required to submit a management plan for approval to the Forest Service. The program is voluntary.

In Pennsylvania, the Department of Environmental Conservation regulates the State's forestry activities. The Department establishes guidelines for timber cutting and designates areas for special uses such as natural areas, parks, picnic areas and administrative areas. These areas are not to be managed for timber products. All the timber that is to be sold is marked or designated in accordance with approved silvicultural practices by the local Forestry Service. The Forester is also responsible for making sure specifications for haul roads, skid roads and drainage structures are completed before the sale operations begin.

The Department also participates in cost sharing programs with woodland owners. Professional guidance is available from the District Forester for a range of forestry activities: salvage cutting, crop tree selection, harvest and regeneration betterment, and timber stand improvements. The Bureau of Forestry also conducts training classes in lumber, log and tree grading.

In Wisconsin no controls of wildlife management or woodland grazing on State or county lands have been identified from a water quality standpoint. Timber production in public forests is controlled by a set of regulations which require that a permit be obtained prior to cutting. To obtain the permit, a plan must be submitted that reflects the work proposed to be done and limits any clear cutting to a maximum of 50 acres.



## APPENDIX A

## ALTERNATIVE PROVISIONS

## For Use With The

## MODEL STATE ACT FOR SOIL EROSION AND SEDIMENT CONTROL

During the course of seminars conducted by the National Association of Conservation Districts in over forty states for the purpose of examining the provisions of the Model Act for Soil Erosion and Sediment Control, it became apparent that some alternative wording might better meet the needs of some states. Such alternative language has been developed by NACD with respect to those provisions of the Model Act which had presented questions of interpretation at these meetings. The alternative language does not change the basic intent of the Model Act provisions, but is suggested with the hope that it will clarify their intent, as well as help meet needs which may arise in relation to Section 208 Water Quality Management under P. L. 92-500.



MODEL STATE ACT FOR SOIL EROSION AND SEDIMENT  
CONTROL

ALTERNATIVE LANGUAGE FOR STATE LEGISLATION TO CONTROL EROSION,  
SEDIMENT, AND RELATED POLLUTION AND TO IMPROVE WATER QUALITY

(Modifications are indicated by new language in this column  
and by underlining and strikeouts in text of Model Act.)

**Suggested Legislation**

1 An Act to amend the [soil and water conservation districts law] to  
2 provide for an acceleration and extension of the program for control of  
3 soil erosion and sediment damage resulting from land-disturbing activi-  
4 ties within the State; ~~to provide for adoption of a comprehensive state-~~  
5 ~~wide soil erosion and sediment control program and guidelines and for~~  
6 ~~adoption by [soil and water conservation districts] of soil erosion and~~  
7 ~~sediment control programs consistent with such statewide program and~~  
8 guidelines; to require the filing and approval of plans for the control  
9 of soil erosion and sediment damage in connection with land-disturbing  
10 activities; to provide for inspections and reports; to declare certain  
11 acts to be unlawful; to provide for administration and enforcement;  
12 to provide for financial and other assistance to districts and the  
13 [state soil and water conservation commission] for the purposes of this  
14 Act, and making an appropriation for those purposes; and for other  
15 purposes.

16 *Be It Enacted by the Legislature of the State of [ ] that*  
17 *the [soil and water conservation districts law] shall be amended*  
18 *by adding at the end thereof the following sections:*

1 Section 1. [*Findings and Declaration of Policy.*] The Legislature  
2 finds that erosion continues to be a serious problem throughout the  
3 State, and that rapid shifts in land use from agricultural and rural to  
4 nonagricultural and urbanizing uses, changes in farm and ranch enter-  
5 prises, operations, and ownership, construction of housing, industrial  
6 and commercial developments, streets, highways, recreation areas,  
7 schools and universities, public utilities and facilities, and other land-  
8 disturbing activities have ~~/accelerated the process of soil erosion and~~  
9 ~~sediment deposition resulting in pollution of the waters of the State~~  
10 and damage to domestic, agricultural, industrial, recreational, fish and  
11 wildlife, and other resource uses. It is, therefore, declared to be the  
12 policy of this Act to strengthen and extend the present erosion and  
13 sediment control activities and programs of this State for both rural  
14 and urban lands, ~~/and to establish and implement, through the [state~~  
15 ~~soil and water conservation commission], hereinafter referred to as~~

-----to provide for the improvement of water quality; to  
provide for adoption of a comprehensive statewide  
program and guidelines for the control of soil  
erosion, sediment, and sediment related pollutants,  
and for adoption by [soil and water conservation  
districts] of

-----caused excessive water runoff and

-----to improve water quality,



16 the "Commission," and the [soil and water conservation districts],  
17 hereinafter referred to as "districts," in cooperation with counties,  
18 municipalities, and other local governments and subdivisions of this  
19 State, and other public and private entities, a statewide comprehen-  
20 sive and coordinated erosion and sediment control program/co con-  
21 serve and protect land, water, air, and other resources of the State.

-----to reduce damage from stormwater runoff, to  
retard nonpoint pollution from sediment and  
related pollutants, and

1 Section 2. [Definitions.]

2 (a) "Land-disturbing activity" means any land change which may  
3 result in soil erosion from water or wind and the movement of sediments  
4 into state waters or onto lands in the State, including, but not limited  
5 to, tilling, clearing, grading, excavating, transporting, and filling  
6 of land, other than federal lands, except that the term shall not  
7 include such minor land-disturbing activities as home gardens and  
8 individual home landscaping, repairs, and maintenance work.

----- and sediment related pollutants

9 (b) "Person" means any individual, partnership, firm, associa-  
10 tion, joint venture, public or private corporation, trust, estate,  
11 commission, board, public or private institution, utility, cooperative,  
12 municipality, or other political subdivision of this State, any inter-  
13 state body, or any other legal entity.

14 (c) "State waters" means any and all waters, public or private,  
15 on the surface of the ground, which are contained within, flow through,  
16 or border upon the State of [ ] or any portion thereof.

17 (d) "Erosion and sediment control plan" or "plan" means a  
18 plan for the control of soil erosion, and sediment /resulting from a  
19 land-disturbing activity/

-----, and sediment related pollutants  
-----, stormwater runoff, or accelerated erosion not  
related to a new land disturbing activity.

20 (e) "Conservation standards" or "standards" means standards  
21 adopted by the Commission or the districts pursuant to Sections 3 and 4,  
22 respectively, of this Act.

(f) "Soil erosion" means the wearing away of land by the  
action of wind, water, ice, gravity or a combination thereof

(g) "Sediment" means solid particulate matter, mineral or  
organic, that has been deposited in water, is in suspension  
in water, is being transported, or has been removed from  
its site of origin by the processes of soil erosion and  
stormwater runoff.

(h) "Sediment related pollutants" means substances such as  
nutrients, pesticides, pathogens, and organic materials which  
are transmitted with or in association with sediment. It al-  
means salts in irrigation return flows and animal wastes.

(i) "Enduring practices" means those conservation practices  
which have a useful life of at least ten years and which  
have substantial public benefits.



A-4

1 Section 3. [State Erosion and Sediment Control Program.]

2 (a) The Commission shall, in cooperation with the [state water  
3 quality control agency] and other appropriate state and federal  
4 agencies, develop and coordinate a comprehensive state erosion and -----to carry out the policy stated in section one.  
5 sediment control program/To assist in the development of such a pro-  
6 gram, the Commission shall name an advisory board of not less than 7  
7 nor more than 11 members, representing such interests as housing,  
8 financing, industry, agriculture, recreation, and local governments,  
9 and their planning, transportation, health, public works, and zoning  
10 commissions or agencies.

11 (b) To implement this program, the Commission shall develop and  
12 adopt by [(date)] guidelines ~~for erosion and sediment control~~; which  
13 guidelines may be revised from time to time as may be necessary.  
14 Before adopting or revising guidelines the Commission shall, after  
15 giving due notice,<sup>1</sup> conduct public hearings on the proposed guide-  
16 lines or proposed change in existing guidelines. The guidelines for  
17 carrying out the program shall:

18 (1) be based upon relevant physical and developmental information  
19 concerning the watersheds and drainage basins of the State, including,  
20 but not limited to, data relating to land use, soils, hydrology, geology,  
21 size of land area being disturbed, proximate water bodies and their  
22 characteristics, transportation, and public facilities and services;

23 (2) include such survey of lands and waters as may be deemed ap-  
24 propriate by the Commission or required by any applicable law to  
25 identify areas, including multijurisdictional and watershed areas, with  
26 critical erosion and sediment problems; and

27 (3) contain conservation standards for various types of soils and  
28 land uses, which standards shall include criteria, techniques, and -----, and sediment related pollutants.  
29 methods for the control of erosion, ~~and sediment resulting from land-~~  
30 ~~disturbing activities.~~

31 (c) The program and guidelines shall be made available for public  
32 inspection at the office of the Commission.

1 Section 4. [District Erosion and Sediment Control Program.]

2 (a) Each district in the State shall, within [ ] year(s) after  
3 the adoption of the state guidelines, develop and adopt a soil erosion  
4 and sediment control program consistent with the state program and  
5 guidelines ~~for erosion and sediment control~~: To assist in developing its  
6 program, each district shall name an advisory committee of not less than  
7 7 nor more than 11 members representing such interests as housing,  
8 financing, industry, agriculture, recreation, and local governments,  
9 and their planning, transportation, health, public works, and zoning

<sup>1</sup>Districts laws generally contain a definition of "due notice." If the law does not contain such a definition, one should be included in Section 2 of this Act.



10 commissions or agencies. Upon the request of a district the Commission  
11 shall assist in the preparation of the district's program. Upon adop-  
12 tion of its program, the district shall submit the program to the  
13 Commission for review and approval. If a district fails to submit a  
14 program to the Commission within the period specified herein, the Com-  
15 mission shall, after such hearings or consultations as it deems appro-  
16 priate with the various local interests in the district, develop and  
17 adopt an appropriate program to be carried out by the district. In areas  
18 where there is no district, the Commission shall designate a local unit  
19 of general government such as a county, municipality, town, parish,  
20 borough, or township to develop, adopt, and carry out the erosion  
21 and sediment control program and exercise the responsibilities of a  
22 district with respect thereto, as provided in this Act.

23 (b) To carry out its program the district shall, within [ ]  
24 year(s) after the program has been approved by the Commission, es-  
25 tablish, consistent with the state program and guidelines, conservation  
26 standards for various types of soils and land uses, which standards  
27 shall include criteria, guidelines, techniques, and methods for the  
28 control of erosion, and sediment / resulting from land-disturbing  
29 activities. Such conservation standards may be revised from time to  
30 time as may be necessary. Before adopting or revising conservation  
31 standards, the district shall, after giving due notice, conduct a  
32 public hearing on the proposed conservation standards or proposed  
33 changes in existing standards.

34 (c) The program and conservation standards shall be made available  
35 for public inspection at the principal office of the district.

1 Section 5. [Prohibited Land-Disturbing Activities.] -----No

2 (a) ~~Except as provided in subsection (e) of this section, no~~  
3 person may engage in any land-disturbing activity until he has sub-  
4 mitted to the district a plan for erosion and sediment control for such  
5 land-disturbing activity and such plan has been reviewed and approved  
6 by the district, except that (1) when proposed land-disturbing activities  
7 are to be performed on state lands or by or on behalf of a state agency,  
8 plans for erosion and sediment control shall be submitted to the Com-  
9 mission instead of the district for review and approval, and (2) where  
10 land-disturbing activities involve lands in more than one district,  
11 plans for erosion and sediment control may, as an alternative to sub-  
12 mission to each district concerned, be submitted to the Commission  
13 for review and approval. -----a

14 (b) Upon submission of ~~an erosion and sediment control~~ plan to  
15 a district or to the Commission:



16 (1) the districts shall review plans submitted to it and shall  
 17 approve any such plan if it determines that the plan meets the con-  
 18 servation standards of the district, and if the person responsible for  
 19 carrying out the plan certifies that he will properly perform the  
 20 ~~erosion and sediment control~~ measures included in the plan and will  
 21 conform to the provisions of this Act;

22 (2) the Commission shall review plans submitted to it and shall  
 23 approve any such plan if it determines that the plan is adequate in  
 24 consideration of the Commission's guidelines and the conservation stand-  
 25 ards of the district or districts involved, and if the person re-  
 26 sponsible for carrying out the plan certifies that he will properly  
 27 perform the conservation measures included in the plan and will con-  
 28 form to the provisions of this Act.

29 (c) When a plan submitted for approval under this section is  
 30 found, upon review by a district or the Commission, to be inadequate,  
 31 the district or the Commission, as the case may be, may require such  
 32 modifications, terms, and conditions as will permit approval of the  
 33 plan.

34 (d) An approved plan may be changed by the district which has  
 35 approved the plan or by the Commission when it has approved the plan,  
 36 where:

37 (1) inspection has revealed the inadequacy of the plan to ac-  
 38 complish the ~~erosion and sediment control~~ objectives of the plan,  
 39 and appropriate modifications to correct the deficiencies of the plan  
 40 are agreed to by the plan-approving authority and the person responsible  
 41 for carrying out the plan; or

42 (2) the person responsible for carrying out the approved plan  
 43 finds that because of changed circumstances or for other reasons the  
 44 approved plan cannot be effectively carried out, and proposed amend-  
 45 ments to the plan, consistent with the requirements of this Act, are  
 46 agreed to by the plan-approving authority and the person responsible  
 47 for carrying out the plan.

48 ~~(c) Any person owning, occupying, or operating private agricultural~~  
 49 ~~and forest lands who has a farm or ranch conservation plan approved~~  
 50 ~~by the district and is implementing and maintaining such plan with~~  
 51 ~~respect to normal agricultural and forestry activities, or any person~~  
 52 ~~whose normal agricultural and forestry practices are in conformance~~  
 53 ~~with the conservation standards established pursuant to this Act, shall~~  
 54 ~~not be deemed to be engaged in prohibited land-disturbing activity~~  
 55 ~~if there is not available to any such owner, operator, or occupier at~~  
 56 ~~least 50 percent cost sharing assistance or adequate technical as-~~  
 57 ~~sistance for the installation of erosion and sediment control measures~~  
 58 ~~required in an approved farm or ranch plan, or for measures to con-~~  
 59 ~~form agricultural and forestry practices to conservation standards~~  
 60 ~~established pursuant to this Act; any such owner, occupier, or operator~~  
 61 ~~who shall fail to install erosion and sediment control measures required~~  
 62 ~~in an approved farm or ranch conservation plan, or to conform his~~

This subsection deleted here and incorporated in  
 renumbered section 6.



63 agricultural - and - forestry - practices - to - such - conservation - standards,  
64 shall - not - be - deemed - to - be - engaged - in - prohibited - land-disturbing  
65 activity - subject - to - penalties - under - the - Act.

1 Section 6. ~~[Approved - Plan - Required - for - Issuance - of - Grading,~~  
2 ~~Building, - or - Other - Permits.] No agency authorized under any other~~  
3 ~~law to issue grading, building, or other permits for activities in-~~  
4 ~~volving land-disturbing activities may issue any such permits unless~~  
5 ~~the applicant therefor submits with his application an erosion and~~  
6 ~~sediment control plan approved by the district, or by the Commission~~  
7 ~~where appropriate, and his certification that such plan will be fol-~~  
8 ~~lowed. These requirements are in addition to all other provisions of law~~  
9 ~~relating to the issuance of such permits and are not intended to other-~~  
10 ~~wise affect the requirements for such permits.~~

This section is deleted and its substance  
incorporated in the next section.

1 Section 7. ~~[Monitoring, Reports, and Inspections.]~~ -----6. [Compliance Requirements - Monitoring, Reports,  
and Inspections.]

(a) Land disturbing activities involving agricultural or silvicultural activities. Any person owning, occupying, or operating private agricultural and silvicultural lands who has a farm or ranch conservation plan approved by the district and is implementing and maintaining such plan with respect to normal agricultural and silvicultural activities, or any person whose normal agricultural and silvicultural practices are in conformance with the conservation standards established pursuant to this Act, shall be deemed to be in compliance with the requirements of the act for an approved erosion and sediment control plan. If there is not available to any such owner, operator, or occupier at least 50 percent cost-sharing assistance or technical assistance for the installation of enduring measure which are required in an approved farm or ranch conservation plan, or for measures to conform agricultural and silvicultural practices to conservation standards established pursuant to this Act, any such owner, occupier, or operator who shall fail to install such measures shall not be deemed to be in violation of the Act and subject to penalties under this Act. In connection with such agricultural or silvicultural operations, the district, or the commission where appropriate, may, upon its own motion or upon receipt of a complaint, make such on site inspections as are deemed necessary to determine whether the operations are being carried out in accordance with the conservation plan or with the conservation standards established pursuant to this Act.



On site inspections may be made after notice to the resident owner, operator, or occupier of the land involved, and such person shall be given an opportunity to accompany the inspector. If such inspections reveal that an owner, operator, or occupier of agricultural or silvicultural lands is not complying with the approved farm or ranch conservation plan or is not carrying out his agricultural and silvicultural practices in conformance with conservation standards established pursuant to this Act, such owner, operator, or occupier shall be notified by registered mail addressed to him at his usual abode or customary place of business of the measures needed for compliance. Such notice shall require that such resident owner, occupier, or operator shall commence such measures within 6 months from the date of the notice and shall complete the same within 12 months of such date. Upon failure to comply with such notice, the owner, occupier, or operator will be deemed in violation of this Act and subject to the penalties provided by this Act.

----- (b)

2 (a) Land-disturbing activities where ~~1~~ permit is ~~is~~ issued. With  
 3 respect to approved plans for erosion and sediment control in connec-  
 4 tion with land-disturbing activities which involve the issuance of a  
 5 grading, building, or other permit, the permit-issuing authority shall  
 6 provide for periodic inspections of the land-disturbing activity to  
 7 insure compliance with the approved plan, and to determine whether the  
 8 measures required in the plan are effective in controlling erosion and  
 9 sediment resulting from the land-disturbing activities. Notice of such  
 10 right of inspection shall be included in the permit. If the permit-  
 11 issuing authority determines that the permittee has failed to comply  
 12 with the plan, the authority shall immediately serve upon the permittee  
 13 by registered mail to the address specified by the permittee in his  
 14 permit application a notice to comply. Such notice shall set forth the  
 15 measures needed to come into compliance with such plan and shall specify  
 16 the time within which such measures shall be completed. If the permittee  
 17 fails to comply within the time specified, he shall be deemed to be in  
 18 violation of this Act ~~and~~ upon conviction shall be subject to the  
 19 penalties provided by the Act.

----- -a

----- required.

----- under other laws,

----- require that all erosion and sediment control plans approved by the district be submitted with the permit application. Such authority shall also



20 ~~(b) Other land-disturbing activities, except agricultural and~~ (c)  
21 ~~forestry operations.~~ With respect to approved plans for erosion  
22 and sediment control in connection with all other land-disturbing  
23 activities, ~~except agricultural and farming operations,~~ the district,  
24 or the Commission in connection with plans approved by it, may require  
25 of the person responsible for carrying out the plan such monitoring  
26 and reports, and may/make such on-site inspections after notice to the  
27 resident owner, occupier, or operator, as are deemed necessary to  
28 determine whether the soil erosion and sediment control measures re-  
29 quired by the approved plan are being properly performed, and whether  
30 such measures are effective in controlling soil erosion and sediment  
31 resulting from the land-disturbing activity. Such resident owner,  
32 occupier, or operator shall be given an opportunity to accompany the  
33 inspectors. If it is determined that there is failure to comply with  
34 the approved plan, the district, or the Commission where appropriate,  
35 shall serve upon the person who is responsible for carrying out the  
36 approved plan a notice to comply, setting forth the measures needed  
37 to be taken and specifying the time in which such measures shall be  
38 completed. Such notice shall be by registered mail to the person re-  
39 sponsible for carrying out the plan at the address specified by him in  
40 his certification at the time of obtaining his approved plan. Upon  
41 failure of such person to comply within the specified period, he will  
42 be deemed to be in violation of the Act and subject to the penalties  
43 provided by the Act.

44 ~~(c) Agricultural and forestry operations.~~ With respect to  
45 ~~agricultural and forestry operations,~~ the district shall have authority  
46 ~~to make on-site inspections to determine if the approved farm or ranch~~  
47 ~~conservation plan is being followed, or, where there is no such plan,~~  
48 ~~to determine if the agricultural and forestry practices are being~~  
49 ~~carried out in conformance with conservation standards established~~  
50 ~~pursuant to this Act. On-site inspections may be made after notice to~~  
51 ~~the resident owner, operator, or occupier of the land involved, and~~  
52 ~~such person shall be given an opportunity to accompany the inspector.~~  
53 ~~If such inspections reveal that an owner, operator, or occupier of agri-~~  
54 ~~cultural or forestry lands is not complying with the approved farm or~~  
55 ~~ranch conservation plan or is not carrying out his agricultural and~~  
56 ~~forestry practices in conformance with conservation standards established~~  
57 ~~pursuant to this Act, such owner, operator, or occupier shall be noti-~~  
58 ~~fied by registered mail addressed to him at his usual abode or customary~~  
59 ~~place of business of the measures needed for compliance. Such notice~~  
60 ~~shall require that such resident owner, occupier, or operator shall~~  
61 ~~commence such measures within 6 months from the date of the notice~~  
62 ~~and shall complete the same within 12 months of such date. Upon failure~~  
63 ~~to comply with such notice, the owner, occupier, or operator will be~~  
64 ~~deemed in violation of this Act and subject to the penalties provided~~  
65 ~~by the Act.~~

This subsection has been incorporated into subsection  
(a)



1 Section 8. [*Cooperation with Federal Agencies.*] The district-----7  
2 and the Commission are authorized to cooperate and enter into agree-  
3 ments with any federal/agency in connection with plans for erosion and-----or state  
4 sediment control with respect to land-disturbing activities on lands  
5 which are under the jurisdiction of such federal agency.

Section 8. [Ordinances by Local Governmental Units,]  
Local governmental units, such as counties and municipal-  
ities may, under authority of this Act or other authority,  
enact ordinances requiring local programs consistent with,  
and not less strict than, the requirements of this Act and  
the guidelines and standards promulgated pursuant thereto.

1 Section 9. [*Financial and Other Assistance.*] The Commission----- (a)  
2 and the districts are authorized to receive from federal, state, or other  
3 public or private sources financial, technical, or other assistance for  
4 use in accomplishing the purposes of this Act.

(b) The Commission is authorized to make grants  
of funds to districts to carry out the purposes of this Act,  
including, but not limited to, cost sharing assistance for  
enduring measures.

Section 10 [Complaints] Any person claiming  
damage because of sediment or sediment related pollutants  
from an eroding area or from any land-disturbing activity  
may file a written complaint with the permit-issuing  
authority in connection with an activity where a permit  
is issued, with the Commission in connection with  
plans approved of it, or with the appropriate district.  
Upon receipt of such complaint, appropriate action  
shall be taken in accordance with the provisions of  
Section 6. The filing of a complaint shall not preclude  
the complainant from pursuing any other remedy available  
to him under this or other laws.



1 Section ~~10~~<sup>11</sup> [Appeals.] Decisions of the districts, the Commission,  
2 and the permit-issuing authorities under the provisions of this Act  
3 shall be subject to review by the [ ] court; *provided, /an ap-*-----that  
4 peal is filed within 30 days from the date of any such decision.

1 Section ~~11~~<sup>12</sup> [Penalties, Injunctions and Other Legal Actions.]-----6  
2 (a) A violation under Section 5 or ~~7~~ of this Act shall be deemed a  
3 misdemeanor and upon conviction shall be subject to a fine not to  
4 exceed \$500 or one year's imprisonment for each and every violation.  
5 Each day the violation continues shall constitute a separate offense.  
6 (b) The appropriate permit-issuing authority, the district, the  
7 Commission, or any aggrieved person who suffers damage or is likely to  
8 suffer damage because of a violation may apply to the [ ] court  
9 for injunctive relief to enjoin a violation or threatened violation under  
10 Section 5 or ~~7~~ of this Act.-----6

11 (c) The [county attorney] shall, upon request of a district or the  
12 permit-issuing authority, take legal action to enforce the provisions  
13 of this Act. The State Attorney General shall, upon request of the  
14 Commission, take appropriate legal action on behalf of the Commission  
15 to enforce the provisions of this Act.



THE LEGISLATIVE AND INSTITUTIONAL FRAMEWORK  
TO CONTROL POLLUTION FROM LAND USE ACTIVITIES IN  
THE UNITED STATES GREAT LAKES BASIN

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A COMPARATIVE ANALYSIS

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IN SUBCONTRACT TO  
GREAT LAKES BASIN COMMISSION  
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## CHAPTER 1

### INTRODUCTION

#### GENERAL

The purpose of this analysis is to provide the States, the involved Federal agencies and the Pollution From Land Use Activities Reference Group (PLUARG) with enough evaluated information to permit them to make sound decisions on legislative/regulatory measures to reduce pollution from land use activities. Chapter 2 is a comparison of the state and federal programs pertaining to each land use activity. Chapter 3 is an analysis of the information summarized in Chapter 2.

The individual state and federal reports provide the basic information summarized, compared and analyzed in this Report. To that the Contractor has added his evaluation of the best and least control authorities, the adequacy of implementation and needed future actions (in addition to any proposed by state agencies) for each land use activity. For greater simplicity the control components in this Report are aggregations of those in the state and federal reports, as follows:

Direct controls - includes direct pollution control, non-statutory control and management of public lands.

Indirect controls - includes planning, indirect control and fiscal incentives or disincentives.

No controls



## CHAPTER 2

### COMPARISON

#### GENERAL

This chapter presents a comparison of the federal and state legislative frameworks for controlling pollution from land use activities in the U.S. Great Lakes Basin. There is a summary in tabular form for each land use activity. The discussion of each land use activity is in terms of the magnitude of the problem in each state, the program and its evaluation for each state and the federal government, and future actions proposed by the federal or state governments or suggested by the contractor.

#### URBAN AREAS

##### Construction Site Runoff

Table I presents the Summary of Findings for each state and the federal government for the control of sediments through runoff from residential, commercial and industrial construction sites. Officials of all of the states except Minnesota identified pollution from construction site runoff as a moderate to serious problem in their states. Minnesota officials did not feel that they have sufficient technical information to determine the magnitude of the problem, but they do feel that it is a problem.

The federal program for controlling construction site runoff works through state and local agencies. This achieves indirect control through federal requirements for state and local governments to develop control programs. The federal government provides financial and technical assistance and program guidelines for comprehensive planning in regional and local areas. This allows for an identification of areas where runoff from construction activities would be severe. The final type of federal involvement is the provision of technical assistance to state and local agencies, and private individuals on methods to reduce runoff from construction sites.

Only in Pennsylvania do state agencies have direct controls over construction site activities. In Michigan, Minnesota, New York and Wisconsin state agencies have developed guidelines which require local jurisdictions to come up with control programs and implement them. In the case of Wisconsin and Minnesota this only applies to areas along the shorelines of the Great Lakes, the New York program controls land adjacent to fresh water, while in Michigan and Pennsylvania the program is statewide. In all states local governments can control construction site activities under their



TABLE I : SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## CONSTRUCTION SITE RUNOFF

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F,S,L	**	-	I	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	M	D	L	LC	NI	I	I,R
MICHIGAN	M	D	S/L	BC	-	I	
MINNESOTA	UK	D	S/L	LC	NI	A	I,R
NEW YORK	M	D	S/L	LC	NI	A.I	I,R
OHIO	M	D	L	LC	-	I	
PENNSYLVANIA	S	D	S/L	BC	NI	I	R
WISCONSIN	M	D	S/L	LC	NI	A	R

## LEGEND

## PROBLEM

S - Serious  
M - Moderate  
L - Low  
UK - Not yet determined  
NI - Information not available

## TYPE OF CONTROL:

D - Direct  
I - Indirect  
NO - No controls

## INSTITUTION

F - Federal  
S - State  
L - Local...

## Authority Evaluation:

BC - Best Control  
LC - Least Control

## Implementation Evaluation:

+ - Adequate implementation  
- - Inadequate implementation  
NI - Inadequate information to complete evaluation

## Future Action:

A - Authority Improvement  
I - Implementation  
NO - No action  
NA - Not applicable  
NI - Information not available  
NC - No change  
R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



enabling powers. Local governments usually carry out this type of direct control through the issuance of building permits or the approval of zoning or subdivision applications.

The state programs of Michigan and Pennsylvania are identified as best control programs. Both programs require earth moving activities to receive a permit which identifies the measures that will be taken to reduce runoff. These measures must meet state developed guidelines. The difference between the two state programs is administrative, with the Michigan Department of Natural Resources certifying local programs, and local jurisdictions issuing permits. In Pennsylvania the state has retained responsibility for issuing permits.

The remaining states, Indiana, Minnesota, New York, Ohio and Wisconsin have the least control and in some cases the only control is where a local government has decided to implement controls due to local conditions. While both Minnesota and Wisconsin have shoreline zoning protection acts, these acts provide for controls for a relatively limited geographical area. The same lack of geographical coverage is true for New York state where the program only applies to activities within 100 feet of lakes or streams. In Indiana and Ohio local jurisdictions have the authority to adopt sediment control ordinances which would include construction site activities but few have done so.

The federal government, while providing financial and technical assistance, has, in the Contractor's opinion, fallen short in the implementation of its programs. This is the result of inadequate staffing and insufficient financial assistance for planning and program development. In addition, federal regulations limit federal funding assistance for implementation of programs developed at the state and local levels in response to federal requirements. This, in the Contractor's opinion, will limit the success of the federal program since local jurisdictions may find it difficult or will be unwilling to raise the necessary funds.

The Contractor was unable to make an adequate evaluation of implementation in Indiana, Minnesota, New York, Pennsylvania, and Wisconsin due to a lack of information on the implementation of their programs. In part, this was due to the great variation in program implementation at the local level.

The states of Michigan and Ohio have inadequate implementation of their programs. This is due to lack of sufficient staffing to carry out the requirement of the program.

In all states, adequacy of implementation was perceived by state and local officials as the requirement to issue a permit. They did not consider inspections to insure permit compliance as feasible.

There are actions underway or planned to improve implementation. Officials of the federal government indicated that they would continue to try to improve their program implementation. This would become primarily



the improved technical assistance mandated in the 1977 Clean Water Act, and continuing technical research which provides the basis for controls. The states of Michigan and Pennsylvania, while they have the best authorities to control construction site runoff, indicated that they need additional staff to insure adequate implementation. Therefore, they are seeking new funding mechanisms which will allow them to strengthen their programs and insure adequate implementation.

In the states of Minnesota, New York, and Wisconsin, state officials indicated there would be attempts to improve the authority currently available to control construction site runoff. In Wisconsin, the Washington County project is attempting to develop controls which are based on the Wisconsin Shoreline Protection Act. If successful, the state will develop guidelines and local jurisdictions will develop and implement programs within the state guidelines. In New York and Minnesota, officials indicated that additional authority is needed for the adequate control of construction site runoff. They are waiting on the results of the federally required Water Quality Management Plans currently being developed by state and local planning agencies before they attempt to design a control program and request any additional authority and the funding necessary to implement it. The states of Indiana and Ohio have pending legislation which would provide state and local agencies with the authority to control construction site runoff. The passage of this bill and its adequate implementation would be required before construction site runoff is controlled in the state.

In addition to the future actions proposed by the states, the Contractor suggests that the five states where information on the implementation of existing programs is unavailable start a study program to identify implementation problems. The Contractor also suggests that Indiana, Minnesota, and New York strengthen the implementation of their existing authority, as well as continuing to complete the actions that they see in the future.

#### Stormwater Runoff

Table II presents the Summary of Findings for each state and the federal government for the control of pollution caused by stormwater runoff. Only officials in Illinois and Michigan felt that they had adequate technical information to be able to identify the magnitude of this problem in their states. Indiana, Minnesota, New York, Ohio, Pennsylvania and Wisconsin officials indicated that the magnitude of the problem is unknown in their states. All states indicated that they have hopes that the federally mandated Water Quality Management Planning Program will provide them with additional information to be able to determine the magnitude of the problem.

The federal government has indirect control of stormwater runoff through its requirements for state and local agencies to develop management plans under the Water Quality Management Planning Program, and through the specific management plans that must be developed for flooding prone areas under the Flood Control Act. The development and implementation of these



TABLE II : SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## STORMWATER RUNOFF

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F,S,L	**	-	I	
ILLINOIS	M	D,I	L		+	I	R
INDIANA	UK	D,I	L	LC	NA	A	R
MICHIGAN	S	D,I	S/L		NI	A	R
MINNESOTA	UK	D,I	L		NA	I	R
NEW YORK	UK	D,I	S/L	LC	NA	I	R
OHIO	NI	D,I	L		NA	NO	R
PENNSYLVANIA	UK	D,I	L		NA	I	R
WISCONSIN	UK	D,I	L		NA	I	R

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



controls is a combination of federal guidelines and technical research combined with state and local planning and implementation. The federal government also provides financial and technical assistance for program development under the Water Quality Management Planning Program.

Within the states, the responsibility for control of stormwater runoff has traditionally been a local one. To date, the local activity has been primarily to construct stormwater collection facilities. These facilities originally combined the stormwater with sanitary sewage, but recently the emphasis has been on separating the stormwater from sanitary sewage. Also in recent years some localities have required stormwater management measures in new developments through their zoning and subdivision ordinances. All local jurisdictions throughout the Great Lakes Basin have the authority to implement such stormwater management measures through their general enabling powers. Some local governments in Illinois, Indiana, Minnesota, Ohio, Pennsylvania and Wisconsin have implemented such measures.

Few states have any state level stormwater controls. In Michigan, the Subdivision Control Act allows state agencies to review development proposals including stormwater runoff. In New York, combined stormwater and sanitary sewage sewer systems are controlled through a permitting program. If it can be shown that the combined sewer is the most cost effective way to treat the stormwater problem, a permit is issued. There are no other statewide controls in New York.

The problem in evaluating urban stormwater runoff controls is that the traditionally local nature of the program has resulted in a lack of information on local activities at the state level. All state officials indicated that they are hoping to use the federally mandated Water Quality Management Planning Program as a vehicle to not only identify the magnitude of the problem but to provide the necessary information on local implementation and to develop solutions to the controls on stormwater runoff. Thus, state officials are not sure whether the control of stormwater runoff is best achieved through the traditional local approach, some combination of state and local control, or if the state should take over control.

The states of New York and Indiana were judged to have least control. New York is only placing emphasis on combined sewers, while Indiana officials felt that there is a lack of technical knowledge upon which to base adequate controls.

Due to the lack of knowledge as to the magnitude of the problem, and the fragmented locally based controls currently being implemented, the Contractor is unable to evaluate the implementation of controls on a state-wide basis. Based on what little information is available, the Contractor identified that implementation varies from none to model programs, the specific details of which are not readily available. The Illinois review was only conducted for the area adjacent to Lake Michigan. For this area, the Contractor identified adequate resources available to implement the current program although the structural aspects are still under or awaiting construction and escalating costs could jeopardize completion.



The federal program has inadequate implementation, especially in terms of adequate funding for problem identification, program development and program implementation. State and local officials who are experiencing the pressures of implementing the federal water quality requirements emphasize this inadequacy. The Contractor does feel that federal agencies should provide additional assistance, over time, to state and local jurisdictions. This assistance would not necessarily have to be in the form of additional financing, but could be technical assistance. Expected future state actions vary greatly. Indiana and Michigan reported that they would be seeking additional authority to control stormwater runoff from their state legislatures if the results of the Water Quality Management Planning Program indicated that new authority is needed. Ohio does not anticipate any additional action in the field of stormwater runoff control unless strongly indicated by the results of the Water Quality Management Planning Program. Illinois, Minnesota, New York, Pennsylvania and Wisconsin felt that existing authority may be adequate and that what is needed is additional implementation, especially at the local level. The degree of this implementation was not known by the state officials but the results that they have seen from studies to date indicated that additional implementation would vary from locality to locality.

The Contractor feels that the Water Quality Management Planning Program on which all states are relying is the beginning of research, program development and implementation improvement effort which should not stop with the completion of the current study program. To rely completely on the Water Quality Management Planning Program as having the ability to identify controls for all of the stormwater problems is, in the Contractor's opinion, unrealistic. However, it should be the first step to a continuing program to upgrade the control of stormwater runoff. In particular, the Contractor feels that all states must do additional research in identifying the water quality problems that result from stormwater runoff and develop the proper types of controls and institutional arrangements necessary to control it.

## AGRICULTURE

### Pesticides

Table III presents the Summary of Findings for each state and the federal government for the control of pesticides.

The federal government has a direct role in the control of pesticides. This is the development and implementation of a control program that requires the training and certification of all commercial and private applicators of pesticides, and the identification of the labeling, transportation and use of each pesticide. This control program is supported by a technical research program which tests each pesticide for toxicity, life, etc.



TABLE III : SUMMARY OF FINDINGS

## LAND USE ACTIVITY

## PESTICIDES

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	D	F,S	**	-	I	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	L	D	S	BC	+	NC	
MICHIGAN	L	D	S		NI	NC	R
MINNESOTA	M	D	S		-	I	
NEW YORK	L	D	S	BC	+	I	
OHIO	L	D	S		-	I	I
PENNSYLVANIA	M	D	S		-	I	I
WISCONSIN	L	D	S		NI	R	

## LEGEND

## PROBLEM

S - Serious  
M - Moderate  
L - Low  
UK - Not yet determined  
NI - Information not available

## TYPE OF CONTROL:

D - Direct  
I - Indirect  
NO - No controls

## INSTITUTION

F - Federal  
S - State  
L - Local...

## Authority Evaluation:

BC - Best Control  
LC - Least Control

## Implementation Evaluation:

+ - Adequate implementation  
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NI - Inadequate information to complete evaluation

## Future Action:

A - Authority Improvement  
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NC - No change  
R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



At the state and local level, the control of the application of pesticides has traditionally been a state function. All the states are developing control programs that will meet the federal standards. These programs include the licensing and training of commercial and private applicators of pesticides, regulations regarding the transport, storage and disposal of pesticides and pesticides containers, and the registration and labelling of all pesticides. No activity at the local level was identified.

Two states have best programs in terms of authority. New York has the most comprehensive program and has adequate implementation resources to insure that all aspects of the program are being carried out. This program is implemented by the Department of Environmental Conservation in conjunction with the Agricultural Extension Service. It provides for control of every aspect of pesticides from manufacture through transportation, storage, application and disposal, and incorporates a continuing training program. Indiana also, in the Contractor's opinion, has a best control program especially in the area of licensing and training of applicators. The state emphasizes this particular aspect of pesticide control and makes adequate resources available.

All known problems are in the area of implementation. Only Indiana and New York have, in the Contractor's opinion, applied adequate resources to the control of pesticides. Michigan and Wisconsin do not have an adequate information base to make an evaluation of their implementation. Minnesota, Ohio, and Pennsylvania are providing, in the Contractor's opinion, inadequate resources for implementation. The federal government also needs to provide additional resources to implement its authority, especially in the testing of pesticides for use certification.

Officials in Indiana and Michigan indicated that they see no change in the authority or the degree of implementation that they are currently practicing. The Contractor suggests that Michigan attempt to obtain adequate information on the implementation of its program, so that state officials may have an adequate picture on the degree of implementation in their state. The states of Minnesota, New York, Ohio, and Pennsylvania have all indicated that they intend to improve the implementation of their control programs. The Contractor suggests that Ohio and Pennsylvania provide additional funding for program implementation since with additional resources, it is not likely that these states will achieve adequate control over pesticide use. Wisconsin recognizes that it does not yet fully have the technical base in which to implement a comprehensive control program for pesticides. Therefore, it is currently carrying out a program of research to identify the pesticides problems in the state and identify the best method for implementation of a control program for pesticides.

#### Fertilizers

Table IV presents the Summary of Findings for each state and the federal government for the control of the use of fertilizers. Only in the state of Michigan is the level of nutrients entering the streams and



TABLE IV : SUMMARY OF FINDINGS

LAND USE ACTIVITY:  
FERTILIZERS

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F	**	NI	NO	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	UK	I	S		NA	NO	
MICHIGAN	L	I	S		NI	NO	
MINNESOTA	UK	I	S		NA	NO	
NEW YORK	UK	I	S		NA	R	
OHIO	UK	I	S		NA	NO	
PENNSYLVANIA	UK	I	S		NA	NO	
WISCONSIN	UK	I	S		NA	R	

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



lakes from the use of fertilizers identified and it is a problem of low magnitude. In remaining states the magnitude of the problem, if any, caused by fertilizers usage is unknown. Since fertilizers enter the water through sediment, the control of erosion from farm practices will have a great impact on reducing pollution from fertilizers. The control of agricultural erosion is discussed in a subsequent section.

Controls are all indirect. Federal government has no controls over the use of fertilizers; however, the Soil Conservation Service provides technical assistance to farmers related to fertilizer usage. At the state level, the primary control of the use of fertilizers is through the Cooperative Extension Service of the agricultural college in each state. The Extension Service gives soil tests and provides advice to farmers for the use of fertilizers. It is the consensus of the state officials interviewed that fertilizers can cause water quality problems, but their control must be on a site by site basis. Therefore, it is virtually impossible to develop a statewide control program that will have a significant impact. In addition, state officials feel that the rising prices of fertilizers will make misuse less likely and will reduce any water quality impacts.

The combination of advice on fertilizer usage, and the increasing price of fertilizer are, in the Contractor's opinion, the only practical controls on the use of fertilizers. Direct controls are difficult to develop. The Agricultural Extension Service in each state is working from an adequate technical base to provide advice. This, coupled with the technical assistance provided by federal agencies, make moot the question of authority irrelevant unless new methods for direct control are developed.

Degree of implementation is unknown. The federal government and the state of Michigan could not provide adequate information to determine the degree of their implementation. The degree of implementation in the remaining states could not be assessed since the magnitude of the problem was unknown.

The federal government, along with the states of Indiana, Michigan, Ohio and Pennsylvania, has proposed no additional actions for the use of fertilizers. Minnesota, New York and Wisconsin reported that they will be conducting additional research to gain better knowledge of the effects of fertilizers on water quality. This is especially true concerning the time and usage of fertilizer for each type crop and field topography. Once this information is available, the state officials indicated they will be able to assess if controls are needed and where.

#### Feedlot Operations

The Federal Water Pollution Control Act requires that feedlot operations of more than 1,000 animal units or with more than 300 animal units who are discharging a pollutant into navigable waters must receive a permit for the discharge of their pollutants. All states in the Great Lakes Basin are



TABLE V : SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## FEEDLOT OPERATIONS

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F,S	**	-		
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	S	D	S	BC	=	I	I
MICHIGAN	L	NO		LC	NI	NI	R
MINNESOTA	L	D	S		NI	I	R
NEW YORK	L	I	S,L	LC	NI	A,I	R
OHIO	M	I	S,L	LC	-	A,I	
PENNSYLVANIA	M	D	S,L		NI	I	R
WISCONSIN	M	NO		LC	N,A	A,I	R

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local....

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



implementing a permit program which meets the federal requirements. Feedlot operations that are smaller than the sizes mentioned above are defined as nonpoint sources of pollution and are the subject of this discussion. The current programs are summarized in Table V, which includes program evaluation and future actions.

The problem, programs, and needed future actions vary widely through the Basin. Indiana, Ohio, Pennsylvania and Wisconsin have identified pollution from feedlot operations as a serious or moderate problem in their states. The remaining states see it as a problem of low magnitude. Current programs vary from no controls in Wisconsin and Michigan to voluntary guidelines in New York and Ohio (all states of least control) to a permit program for any discharge in Indiana, which is identified as having the best controls in the Basin. The Water Quality Management Plans should identify additional authorities needed. Implementation information is lacking in all states except Indiana, Ohio and the federal government where additional resources are needed. Implementation improvements are planned in all states except Michigan with additional research suggested in those states where implementation information is lacking.

#### Erosion from Farm Practices

Table VI presents the Summary of Findings on the control of erosion from farm practices. All states except Minnesota, which has little farming activity in the Great Lakes Basin, identified water pollution problems from erosion from farm practices to be moderate to serious.

Current control programs do not address plowing and tilling activities, but there are direct and indirect controls over other types of farm practices that could cause pollution. Direct control is in the form of permits for earth moving activities. Indirect controls are conservation plan requirements including technical assistance for plan preparation and cost share assistance for plan implementation. Educational services are also an indirect form of control. Indiana, Minnesota, Ohio and the federal government have only indirect controls. Minnesota and the federal government provide technical and cost share assistance. Indiana and Ohio have pending legislation which, if passed, will provide state agencies with direct controls. All states implement indirect controls through local special districts. Pennsylvania has the best program, while Indiana and Ohio have the least control.

Implementation is inadequate in New York, Ohio, Pennsylvania, Wisconsin and at the federal level. Indiana, Michigan and Minnesota do not have sufficient information to evaluate program implementation. Future actions are proposed in each state with proposals for additional authority in Indiana, New York, Ohio and Wisconsin. All states and the federal government seek to improve implementation of their programs. The Contractor suggests that Indiana and Michigan develop monitoring programs to provide state officials with adequate implementation information.



TABLE VI : SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## EROSION FROM FARM PRACTICES

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
		Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F,S,L	**	-	I	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	M	I	S,L	LC	NI	A,I	R
MICHIGAN	S	D,I	S,L		NI	I	R
MINNESOTA	L	I	S,L		NI	I	
NEW YORK	M	D,I	S,L		-	A,I	
OHIO	M	I	L	LC	-	A,I	
PENNSYLVANIA	M	D,I	S,L	BC	-	I	
WISCONSIN	M	D	S,L		-	A,I	

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



### Drainage

Table VII presents the Summary of Findings on the control of agricultural drainage. All the stated identified any pollution problems that come from agricultural drainage to be of low magnitude.

The federal government provides indirect control of pollution from agricultural drainage through the provision of technical and cost share assistance and education. All states also provide indirect control through technical assistance that is provided through Soil and Water Conservation Districts and Drainage Districts. In addition, where agricultural soil conservation plans are developed, drainage is a consideration in the completion of such a plan. Local zoning and subdivision ordinances also address drainage problems, and these are oriented toward urban development.

All states utilize their local governments, either general purpose or special districts, to implement their programs. In addition, the states of Michigan, New York, Pennsylvania and Wisconsin have given a state agency authority over all the waters in the state. These agencies then become involved in the control of agricultural drainage from a water quality standpoint. This often leads to a conflict between drainage agencies with responsibilities to maintain a drain, where the maintenance has the potential to disturb water quality, and the state agency charged with maintaining their water quality.

Since no state has direct control over drainage from a water quality standpoint, no best or least control authority is identified. In terms of implementation of the indirect programs, the federal agencies could, in the Contractor's opinion, use additional manpower to assist farmers in providing technical assistance and educational services. Michigan and New York have sufficient information to the implementation of their programs. In both these cases, it is found that the local districts and what resources the state applies to the control of drainage are inadequate. Indiana, Minnesota, Ohio, Pennsylvania and Wisconsin do not have sufficient information available to evaluate the implementation of their programs. This is primarily the result of program implementation at the local level and the lack of a monitoring system to provide state officials with adequate information. It is questionable, in the Contractor's opinion, that an extensive monitoring system is required.

### LIQUID, SOIL AND DEEPWELL DISPOSAL

#### Solid Waste

Table VIII presents the Summary of Findings relating to the control of solid waste disposal. New York, Ohio and Pennsylvania officials indicated that they felt the water quality problems resulting from the disposal of solid waste to be moderate to serious. Michigan, Minnesota and Wisconsin officials thought that the magnitude of the water quality problems resulting from the disposal of solid waste to be low. Indiana



TABLE VII : SUMMARY OF FINDINGS

## LAND USE ACTIVITY

## DRAINAGE

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F	**	-	I	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	L	I	L		NI	NI	
MICHIGAN	L	I	SL		-	NC	
MINNESOTA	L	I	L		NI	NO	
NEW YORK	L	I	S,L		-	NO	
OHIO	L	I	L		NI	NO	
PENNSYLVANIA	L	I	S,L		NI	NI	
WISCONSIN	L	I	S,L		NI	NO	

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE VIII: SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## SOLID WASTE

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	D	F,S,L	**	NI	NI	I
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	UK	D	S,L		NA	NI	I
MICHIGAN	L	D	S,L		-	NC	I
MINNESOTA	L	D	S,L		NI	NC	I,R
NEW YORK	M	D,I	S,L		-	A,I	
OHIO	M	D,I	S,L		-	A,I	
PENNSYLVANIA	S	D,I	S,L		-	A,I	
WISCONSIN	L	D,I	S,L	BC	+	NC	I

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



officials did not feel that adequate technical information is available to determine the magnitude of the problem from solid waste disposal.

The control of solid waste disposal has been for a long time the responsibility of local agencies, primarily the local health departments. In the past decade, there has been a trend by the state and federal governments to participate in the control of solid waste disposal. Federal participation is both direct and indirect. The federal government has established standards controlling the disposal of solid and hazardous wastes. These standards include the construction and operation, transportation, treatment, storage and disposal facilities. These standards are used to evaluate state implementation programs which must be certified by EPA. Upon certification EPA provides financial assistance to the state to implement its program.

At the state level, all of the states have direct controls for the disposal of solid wastes. This is in response to the federal program, where all states have developed programs to meet the federal requirements. An additional federal, state and local cooperative effort is the development of the Water Quality Management Plans required by federal statute. Here again the federal government is providing standards for the disposal of wastes, and the state and local governments are required to develop programs that they can implement to meet the federal requirements. State agencies are working with local jurisdictions to implement their solid waste disposal programs. The local agencies provide manpower for review and recommendation of licensing facilities and the licensed facilities. The control of hazardous wastes is being accomplished by state agencies with limited involvement of local agencies.

The state of Wisconsin is identified as having the best solid waste management program in the Great Lakes Basin. The state establishes minimum standards for the location, design, construction, operation and maintenance of solid waste disposal sites and facilities. In addition, annual licensing of the operation of a solid waste facility is required. These standards and licensing requirements are combined with an education training program to upgrade the knowledge and expertise of local officials and facility operators. Counties and localities implement the program through a locally developed solid waste management plan and control system which meets the standards. The state also has a solid waste recycling authority which assists in the development of waste resource recovery systems. The state is experiencing problems, however, in the implementation of a hazardous waste disposal program. Due to the presence of federal requirements, no state in the basin is identified as having the least or no control. All have developed programs that are responsive to the federal requirements and are in the process of implementing them.

In terms of the implementation of the state's program, insufficient information is available for the federal government and Minnesota to evaluate how well they are implementing their programs. In Indiana, with



the magnitude of the problem unknown, the adequacy of implementation is unknown. Michigan, New York, Ohio and Pennsylvania all must put additional resources toward implementation of their programs. In many instances the emphasis needs to be placed on hazardous waste programs, but solid waste is also a continuing problem. Only in Wisconsin is there adequate implementation.

Officials in Michigan, Minnesota and Wisconsin indicated that they do not see any changes from their current program. Indiana officials are unable to identify changes since they are relying on the Water Quality Management Planning Program to identify problems and develop solutions. New York, Ohio and Pennsylvania officials indicated that they would be seeking additional authority as well as improving the implementation to their programs. The new authority they will be seeking is in the area of resource recovery and hazardous waste.

The Contractor suggests that additional implementation improvements need to be made at the federal level, especially in terms of funding assistance. Implementation improvement is also needed in Indiana and Michigan and should be in the form of additional monitoring and problem identification. Wisconsin needs to continue to strengthen its hazardous waste program as does Minnesota.

This is a moderate to serious problem in New York, Ohio and Pennsylvania, and a problem of low magnitude in the remaining states. Controls are in the form of permits for construction and operation of facilities designed to transport, treat, store and dispose of wastes. These are federal requirements to which all states have responded with control programs. These programs are implemented through state and local agencies. Wisconsin has adequate program implementation, but the other Basin states have inadequate implementation or lack sufficient information to allow evaluation. In Indiana, the magnitude of the problem is unknown so the success of implementation cannot be measured.

The states anticipate future actions if the Water Quality Management Planning Program identifies a need. New York, Ohio and Pennsylvania want additional authority to control hazardous wastes and stimulate resource recovery. The Contractor suggests additional funding assistance and program monitoring efforts in Indiana and Michigan.

#### Liquid Sewage Sludge

Table IX presents the Summary of Findings in the control of the disposal of liquid sewage sludge. Officials in Ohio and Pennsylvania identified pollution from liquid sewage as a moderate problem. Wisconsin officials did not know the magnitude of the problem, with the remaining state officials identifying it as a problem of low magnitude.

The federal government has both direct and indirect control over the disposal of liquid sewage sludge. The Water Quality Management Planning



TABLE IX : SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## LIQUID SEWAGE SLUDGE

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	D,I	F,S,L	**	NI	I	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	L	D	S		-	NI	A
MICHIGAN	L	D	S		+	NC	A
MINNESOTA	L	D	S		NI	I	A
NEW YORK	L	D	S		NI	I	A
OHIO	M	D	S,L		NI	A	A
PENNSYLVANIA	M	D	S		-	A	A
WISCONSIN	UK	D,I	S,L	LC	NA	NI	R

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



Program is required to address the disposal of liquid sewage sludge and come up with adequate management plans. These plans must be approved by the EPA before waste water facility construction funds and point source permit programs can be permanently implemented. A more direct control of the federal government is the Construction Grants Program which requires that for each waste water treatment facility built, specific sludge management plans that have adequate provision for the disposal of liquid sewage sludge must be developed.

All states have some type of direct control over different aspects of the disposal of liquid sewage sludge. Indiana and Michigan, through state agencies, license haulers of liquid sewage sludge and require the issuance of permits for the disposal of industrial liquid wastes. New York has a state administered program that requires the licensing of haulers of liquid sewage sludge. Minnesota regulates the disposal of liquid sewage sludge and is developing regulations related to the land disposal of sludge. In Ohio, there are controls over the land application of sewage sludge, which are administered through a combination of state and local authorities. Pennsylvania only has controls over the disposal of industrial wastes, and controls through a permit program the land application of sewage sludge. These are specifically related to industrial waste disposal. Wisconsin has direct and indirect control of sludge disposal in the flood plain and shoreline areas through its shoreline and flood plain zoning program. This program requires site approval by the state before sludge may be disposed. The state has also issued a set of rules for the management of sludge, which, while not carrying the weight of the official regulations, do provide guidelines which many operators of sludge disposal facilities follows.

None of the programs in the Great Lakes Basin are identified as having the adequate authority for the control of liquid sewage sludge. The adequate control of liquid sewage sludge disposal should include regulation of the hauling of sludge, the construction and operation of disposal facilities and the land application of sludge. None of the state programs address all of these types of controls. The state of Wisconsin is identified as having the least control, since their only direct control covers the flood plains and shoreline areas, and only guidelines are available to facility operators on a voluntary basis.

Evaluation of the implementation of the current federal program, Minnesota, New York and Ohio programs was not possible due to insufficient information. The Wisconsin program cannot be evaluated since the magnitude of the problem is unknown; therefore, the success of implementation programs cannot be determined. Michigan's program has adequate staffing; therefore, implementation seems to be adequate. Indiana and Pennsylvania are short of resources in their implementation programs.

No information was available to identify the future actions proposed by the states for Indiana and Wisconsin although all of the states will be looking toward the Water Quality Plans as guidelines for improving their programs. Michigan did not see that they would have any change in



their authority to control liquid sewage sludge. Ohio officials identified the need for additional authority, especially in the area of industrial wastes and the land filling of sludge. The state of Pennsylvania also identified the need for additional authorities, especially related to the haulers of industrial wastes.

Implementation improvements are identified at the federal level, especially in providing assistance to states, as the Water Quality Management Plans are completed and implementation begins. The states of Minnesota and New York also identified that additional implementation would be necessary to adequately control the disposal of liquid sewage sludge in their states.

The Contractor suggests that in addition to the future actions proposed by the states, Wisconsin complete its technical studies so that it may identify the magnitude of the problem in the state and develop appropriate controls. The Contractor also suggests that controls be developed in each state so that they have a complete program for controlling the hauling, land application of sewage and industrial wastes, and the operation of disposal facilities.

#### Private Sewage Disposal

All states except New York identified water quality problems resulting from the private sewage disposal as being moderate to serious. Officials in New York felt that they do not have adequate information to determine the magnitude of the water quality problem created by private sewage disposal.

The federal government has indirect control over private sewage disposal through its Water Quality Management Planning requirements for state and local governments. As mentioned earlier, this program is currently in the planning stage which will determine the best management agencies and practices for private sewage disposal control. Additional federal indirect programs relate to the federal funding of comprehensive planning which will identify the areas where private sewage disposal systems may be located. Traditionally, the control of private sewage systems has been a function of local health departments, which review the plans and the installation of the system. Once the system is installed there is very little follow-up inspection to insure proper operation. After a period of years, most systems become faulty and begin to cause water quality problems.

All states have a combination of state and local control, with the local agencies having primary responsibility for approving and supervising the installation of private sewage disposal systems. In general, the requirement at the local level is the same in all the states, but the role of the state agencies varies. In all cases, the state is providing guidelines, model legislation, or requirements for standards that a local program must meet. The states also provide technical assistance and educational services where resources permit.



TABLE X : SUMMARY OF FINDINGS

## LAND USE ACTIVITY

## PRIVATE SEWAGE DISPOSAL:

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F,S,L	**	-	I	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	S	D,I	S,L	LC	-	A	I
MICHIGAN	M	D,I	S,L		-	NC	I
MINNESOTA	S	D,I	S,L	BC	-	I	
NEW YORK	UK	D	S,L		-	A	I,R
OHIO	M	D	S,L		-	A	I
PENNSYLVANIA	M	D,I	S,L	BC	-	I	
WISCONSIN	M	D,I	S,L	LC	-	A	I

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



The states of Minnesota and Pennsylvania have the best programs in the Basin. In both cases, the local jurisdictions have prime responsibility for implementing controls on private sewage disposal, but the strong points of their program are the involvement of state agencies which provide necessary technical and manpower support to the local programs. In both cases, the state has identified specific guidelines which a local jurisdiction must meet. The outstanding feature of the Minnesota program is a requirement that not only newly installed private sewage disposal systems must meet the standards, but that existing systems must also meet the standards. The enforcement of these provisions seems to have a significant impact on improving the operation of private sewage disposal systems in the state. Pennsylvania, on the other hand, seems to have developed a good state and local working arrangement for the control of sewage disposal. The program requires that the state certify sewage enforcement officers at the local level, and that each locality must submit for state approval an officially adopted plan for sewage system installation with its jurisdictions. This plan must identify areas where private sewage disposal systems will be allowed.

The states of Indiana, Michigan and Wisconsin have the least controls over private sewage disposal systems. This least control is primarily a function of the degree of state involvement in the program to provide guidance and assistance to local implementing agencies. The state of Wisconsin is completing a detailed study of alternative courses of action to improve its control of private sewage disposal and should improve its authority significantly in the near future.

In all states, including those with the best programs, implementation varies widely at the local level. The Contractor's evaluation of the implementation in all states is that it is inadequate since it focuses only on plan approval and initial inspection during installation of systems with no state having a program designed to have a regularly scheduled inspection program.

The federal government proposes to continue to improve its implementation as the Water Quality Plans are completed and require certification by the EPA. The state of Michigan did not see that they would be making significant changes in their program in the near future. The states of Indiana, New York, Ohio and Wisconsin reported that they would be seeking to develop new legislation and/or regulations to improve their programs. In all cases, these improvements in legislation will result in greater state involvement in the control of private sewage disposal with local jurisdictions continuing to have the primary responsibility.

Minnesota and Pennsylvania officials feel that they have adequate authority to control private sewage disposal, but that the additional resources are needed to improve the implementation of their programs. The state of Wisconsin is also proposing that the state responsibility for



the control of private sewage disposal be shifted from the Department of Health to the Department of Natural Resources, which will give a more water quality oriented approach.

In all states the development of new authorities or the improvement to the implementation of controls will be impacted by the Water Quality Management Plans required by the Federal Water Pollution Control Act. These plans should be a starting point for the improvement of the control of private sewage disposal systems. The contractor feels that additional future actions are needed to improve the implementation in the states of Indiana, Michigan, New York, Ohio and Wisconsin. In all cases except Michigan, the states have indicated that they will be seeking additional authorities. It is the contractor's evaluation that the seeking of this additional authority will also result in a requirement for additional resources for implementation programs. In New York, the contractor also suggests that a research study be started to allow the state to determine the magnitude of the water quality problems resulting from private sewage disposal.

#### REMAINING LAND USE ACTIVITIES

The remaining land use activities of runoff in transportation corridors; shoreline land or construction excavation and dredging; the extractive operations of pits and quarries, mining and brine from oil and gas operations; runoff from recreation facilities; lakeshore and riverbank erosion and forest activities all have a problem of low magnitude with a few exceptions. The findings are summarized in Tables XI-XXI.

The exceptions are transportation runoff in Pennsylvania, where the state has sufficient authority and proposes to improve its implementation, and extractive operations in Pennsylvania and New York. In both states, the geographical areas with the most severe problems are outside of the Great Lakes Basin; thus, there is little impact on the Lakes.



TABLE XI : SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## RUNOFF FROM TRANSPORTATION FACILITIES &amp; RIGHTS-OF-WAY

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	D	F,S	**	NI	NO	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	L	D	S		NI	NI	
MICHIGAN	L	D	S,L	BC	NI	NC	
MINNESOTA	L	D	S		NI	NO	
NEW YORK	L	D,I	S	BC	NI	I	
OHIO	L	D	S		NI	NO	
PENNSYLVANIA	M	D	S		NI	I	
WISCONSIN	L	D	S		NI	NI	

## LEGEND

## PROBLEM

S - Serious  
M - Moderate  
L - Low  
UK - Not yet determined  
NI - Information not available

## TYPE OF CONTROL:

D - Direct  
I - Indirect  
NO - No controls

## INSTITUTION

F - Federal  
S - State  
L - Local

## Authority Evaluation:

BC - Best Control  
LC - Least Control

## Implementation Evaluation:

+ - Adequate implementation  
- - Inadequate implementation  
NI - Inadequate information to complete evaluation

## Future Action:

A - Authority Improvement  
I - Implementation  
NO - No action  
NA - Not applicable  
NI - Information not available  
NC - No change  
R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE XII: SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## SHORELINE LAND OR CONSTRUCTION EXCAVATION

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	D,I	F,S	**	-	I	
ILLINOIS	L	D,I	S,L	BC	+	A	
INDIANA	NI	D,I	S		NI	A	R
MICHIGAN	L	D,I	S,L	BC	NI	I	
MINNESOTA	L	D	S		NI	NC	
NEW YORK	UK	D,I	S		MI	NO	R
OHIO	NI	D	S	NI	NI	R	
PENNSYLVANIA	NI	D,I	S		NI	I	R
WISCONSIN	L	D,I	S,L	BC	+	NO	

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- +- Adequate implementation
- Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change

R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE XIII: SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## DREDGING

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	D,I	F,S	**	-	I	
ILLINOIS	L	D,I	S	BC	+	I	
INDIANA	NI	D,I	S		NI	A	R
MICHIGAN	L	D,I	S,L	BC	NI	I	
MINNESOTA	L	D	S		NI	NC	
NEW YORK	UK	D,I	S		NA	NO	R
OHIO	NI	D	S		NI	NI	R
PENNSYLVANIA	NI	D	S		NI	I	R
WISCONSIN	L	D,I	S,L	BC	+	NO	

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE XIV : SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## PITS AND QUARRIES

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	NO		**	NA	NO	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	L	NO			+	NO	
MICHIGAN	L	I	S		NI	NI	
MINNESOTA	UK	NO			NA	NO	
NEW YORK	M	D,I	S		-	A	
OHIO	L	D	S		-	I	
PENNSYLVANIA	S	D,I	S		-	I	
WISCONSIN	L	NR		NA	NO		

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- +
- 
- NI

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE XV : SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## MINING

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	D	F,S	**	NI	I	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	L	D,I	S		NI	NO	
MICHIGAN	L	D,I	S		-	NI	
MINNESOTA	L	D,I	S		NI	NO	
NEW YORK	M	D,I	S		-	A	
OHIO	L	D,I	S		-	I	
PENNSYLVANIA	S	D,I	S		-	I	
WISCONSIN	L	D,I	S		NI	I	

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE XVI : SUMMARY OF FINDINGS

## LAND USE ACTIVITY

## BRINES FROM OIL AND GAS

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F,S	**	NI	I	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	L	D	S		NI	NO	
MICHIGAN	L	D	S		NI	NI	
MINNESOTA	L	NO			NA	NO	
NEW YORK	L	D	S		NI	A	
OHIO	M	D,I	S		-	I	
PENNSYLVANIA	S	D,I	S	BC	-	I	
WISCONSIN	L	NO			NI	NO	

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE XVII: SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## RUNOFF FROM SPECIFIC RECREATION ACTIVITIES

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F,S	**	NI	NI	
ILLINOIS	L	I	S,L		NI	NC	
INDIANA	NI	I	S		NA	NI	
MICHIGAN	L	I	S,L		NI	NI	
MINNESOTA	L	I	S		NI	NC	
NEW YORK	L	D,I	S,L	BC	NI	I	
OHIO	L	I	L		NI	NI	
PENNSYLVANIA	L	I	S		NI	A,I	
WISCONSIN	J	I	S,L		NI	NO	

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE XVIII: SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## LAKESHORE AND RIVERBANK EROSION

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F,S,L	**	NI	NI	
ILLINOIS	M	NO		BC	+	A	
INDIANA	NI	I	S,L		NA	NO	
MICHIGAN	M	D,I	S,L		NI	A	
MINNESOTA	L	D	S,L		NI	I	
NEW YORK	UK	D,I	S,L		NA	A,I	
OHIO	UK	NO			NA	NI	
PENNSYLVANIA	NI	NO			NI	I	
WISCONSIN	UK	D	S,L		+	NI	

## LEGEND

## PROBLEM

S - Serious  
M - Moderate  
L - Low  
UK - Not yet determined  
NI - Information not available

## TYPE OF CONTROL:

D - Direct  
I - Indirect  
NO - No controls

## INSTITUTION

F - Federal  
S - State  
L - Local...

## Authority Evaluation:

BC - Best Control  
LC - Least Control

## Implementation Evaluation:

+ - Adequate implementation  
- - Inadequate implementation  
NI - Inadequate information to complete evaluation

## Future Action:

A - Authority Improvement  
I - Implementation  
NO - No action  
NA - Not applicable  
NI - Information not available  
NC - No change  
R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE XIX: SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## TIMBER PRODUCTION

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F,S,L	**	NI	NI	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	L	I	S		NI	NO	
MICHIGAN	L	D	S		NI	NC	
MINNESOTA	L	I	S		NI	NC	
NEW YORK	L	I	S		-	I	
OHIO	UK	I	S		NA	I	
PENNSYLVANIA	L	D,I	S		-	I	
WISCONSIN	L	I	S,L	BC	NI	NI	

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE XX : SUMMARY OF FINDINGS

## LAND USE ACTIVITY:

## WOODLAND GRAZING

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F	**	NI	NI	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	L	NO			NI	NO	
MICHIGAN	L	NO			NI	NO	
MINNESOTA	L	NO			NI	NC	
NEW YORK	L	NI			NI	NI	
OHIO	UK	I	S		NA	NI	
PENNSYLVANIA	L	D			NI	NI	
WISCONSIN	L	D	S		NI	NI	

## LEGEND

## PROBLEM

- S - Serious
- M - Moderate
- L - Low
- UK - Not yet determined
- NI - Information not available

## TYPE OF CONTROL:

- D - Direct
- I - Indirect
- NO - No controls

## INSTITUTION

- F - Federal
- S - State
- L - Local

## Authority Evaluation:

- BC - Best Control
- LC - Least Control

## Implementation Evaluation:

- + - Adequate implementation
- - Inadequate implementation
- NI - Inadequate information to complete evaluation

## Future Action:

- A - Authority Improvement
- I - Implementation
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



TABLE XXI: SUMMARY OF FINDINGS

LAND USE ACTIVITY:  
WILDLIFE MANAGEMENT

	PROBLEM	PROGRAM		EVALUATION		FUTURE ACTION	
	Magnitude of the Problem	Type of Controls	Institutional level of implementation	Best or Least Authority	Contractor's implementation evaluation	Proposed by the federal or state agencies	Contractor's suggested additional actions
FEDERAL	*	I	F	**	NI	NI	
ILLINOIS	ACTIVITY NOT REVIEWED FOR ILLINOIS						
INDIANA	L	NO			NI	NO	
MICHIGAN	L	NO			NI	NI	
MINNESOTA	L	NO			NI	NC	
NEW YORK	L	D			NI	I	
OHIO	UK	NO			NA	NI	
PENNSYLVANIA	L	NO			NI	NI	
WISCONSIN	L	NO			NI	NI	

## LEGEND

## PROBLEM

S - Serious  
M - Moderate  
L - Low  
UK - Not yet determined  
NI - Information not available

## TYPE OF CONTROL:

D - Direct  
I - Indirect  
NO - No controls

## INSTITUTION

F - Federal  
S - State  
L - Local...

## Authority Evaluation:

BC - Best Control  
LC - Least Control

## Implementation Evaluation:

+ - Adequate implementation  
- - Inadequate implementation  
NI - Inadequate information to complete evaluation

## Future Action:

A - Authority Improvement  
I - Implementation  
NO - No action  
NA - Not applicable  
NI - Information not available  
NC - No change  
R - Additional research needed.

\*Problem is identified at State level only

\*\*Best Control and Least Control is determined at the State level within the framework of federal requirements



### CHAPTER 3

#### ANALYSIS

This chapter presents a summary of the analysis of the information developed in Chapter 2. Tables XXII through XXVII are distillations of the individual land use activity tables in Chapter 2. Tables XXII and XXIII show the totals by the magnitude of the problem. Tables XXIV and XXV do the same by state, and Tables XXVI and XXVII by land use activity.

Table XXVIII compares the priority originally established for the study with the severity of the problem actually found. It shows good correlation for the best known categories but hindsight would cause a few changes in others. Based on the state ratings, extractive operations and lakeshore and riverbank erosion might move up the priority scale. Shoreline landfilling would probably now drop to a lower priority. The severity of extractive operations, however, is heavily weighted by the Pennsylvania ratings, yet only a small part of that state is in the Great Lakes Basin and that part has a less severe problem in extractive operations than the state as a whole. Table XXIX presents the general order of problem magnitude based on the state ratings.

Table XXX compares the magnitude of the problem with the type of control used. As the problem decreases so does the percent of direct and indirect controls and the percent of cases with no controls increases. Only when the magnitude of the problem is unknown do indirect controls outnumber direct controls. This table indicates that the states are generally concentrating their best type controls on the most serious problems.

Table XXXI makes a similar comparison between the magnitude of the problem and the institutional level exercising the control. At serious or moderate levels the controls are mostly at both state and local levels. When the problems are of unknown or low magnitude, the controls are mostly at state level only. The four serious problems controlled only at state level are feedlot operations in Indiana and all three extractive activities in Pennsylvania. Local participation in those controls may or may not be feasible. The four moderate problems controlled only at the local level are construction site runoff in Ohio and Indiana, stormwater runoff in Illinois and erosion from farm practices in Ohio. These problems are common to a number of other states which have established state controls



of some type. Thus these four cases seem amenable to improved control through the establishment of state programs.

Table XXXII compares the type of control with the contractors evaluation of the authority. Programs with best controls are clearly different from the other two categories, with much higher percentages having direct and indirect controls. The no control case resulted from the consideration of a pending program which should produce the best controls, but reflecting the current no control situation as well.

Table XXXIII similarly compares the institutional level of control with the contractors authority evaluation. The four cases of Least Control handled only at the local level are the same as the moderate problems on Table XXXI and seem amenable to improvement. It may not be feasible to strengthen the six best controls exercised only at state level by adding local participation. They include pesticides (IN, NY), feedlots (IN), transportation runoff (NY), dredging (IL) and brines from oil and gas (PA).

Table XXXIV compares the types of control with the adequacy of implementation. There is a higher percent of the adequate cases which are combined direct and indirect controls than of the inadequate cases.

Table XXXV compares the level of control with implementation. The results seem to favor local implementation, but the sample of adequate programs is so small that a change of only one or two evaluations could drastically alter the conclusion.

Table XXXVI compares the contractors evaluations of authority and implementation. It shows a general correlation between the two, indicating that states which have the capability of obtaining a good authority usually can also obtain the resources necessary to carry out that authority.

Table XXXVII compares the evaluations with future actions proposed by the state or suggested by the contractor. In those cases of best authority and adequate implementation the states are usually not requesting more controls or resources in either aspect. Where authority is good but implementation is inadequate the states concerned are planning for no more authority but improved implementation. Where both the controls and implementation are inadequate the states are recommending more authority and better implementation, with the former leading the latter slightly. Thus the state agencies recommendations are consistent with the need as seen by the contractor.

Table XXXVIII compares those cases on which there is insufficient information on problem magnitude or implementation with the additional research recommended by states and the contractor. Where the magnitude of the problem is unknown or is judged serious or moderate then the contractor suggested more research in most cases. The states recommended research much less often.



TABLE XXII

## Summary by Magnitude of Problem (Program and Evaluation)

Magnitude of the Problem	Number of Cases	Program						Evaluation					
		Type Control			Institutional			Authority		Implementation			
		D	I	NO	S/L	S	L	BC	LC	+	-	NI	NA
Serious	10	10	8	-	6	4	-	4	1	-	7	3	-
Moderate	30	25	15	2	17	7	4	4	9	2	19	8	1
Low	78	42	36	15	21	37	4	13	2	9	10	57	2
UK/NI	<u>34</u>	<u>20</u>	<u>23</u>	<u>4</u>	<u>8</u>	<u>17</u>	<u>5</u>	<u>-</u>	<u>4</u>	<u>1</u>	<u>1</u>	<u>9</u>	<u>23</u>
TOTAL	152	97	82	21	65	13	52	21	16	12	37	77	26

## LEGEND

## TYPE OF CONTROL:

D - Direct  
I - Indirect  
NO - No controls

## INSTITUTION:

F - Federal  
S - State  
L - Local

## AUTHORITY EVALUATION:

B - Best Control  
LC - Least Control

## IMPLEMENTATION EVALUATION:

+ - Adequate implementation  
- - Inadequate implementation  
NI - Inadequate information to complete evaluation



TABLE XXIII

## Summary by Magnitude of Problem (Future Action)

Magnitude of the Problem	Number of Cases	Action Proposed by State Agencies					Contractors Suggested Additional Action		
		<u>A</u>	<u>I</u>	NO <u>NC</u>	NA <u>NI</u>	<u>R</u>	<u>A</u>	<u>I</u>	<u>R</u>
Serious	10	3	8					2	3
Moderate	30	18	20	1			2	6	7
Low	78	4	20	36	19	1	4	4	5
UK/NI	<u>34</u>	<u>6</u>	<u>9</u>	<u>8</u>	<u>9</u>	<u>3</u>	—	<u>3</u>	<u>17</u>
TOTAL	152	31	57	45	28	4	6	15	32

## LEGEND:

- A - Authority Improvement
- I - Implementation Improvement
- NO - No Action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed.



TABLE XXVI

Summary By Land Use Activity (Problem, Program and Evaluation)

STATE	MAGNITUDE OF THE PROBLEM				PROGRAM						EVALUATION					
	<u>S</u>	<u>M</u>	<u>L</u>	UK <u>NI</u>	<u>Type of Control</u>			<u>Inst, Level</u>			<u>Authority</u>		<u>Implementation</u>			
					<u>D</u>	<u>I</u>	<u>NO</u>	<u>S/L</u>	<u>S</u>	<u>L</u>	<u>BC</u>	<u>LC</u>	<u>+</u>	<u>-</u>	<u>NI</u>	<u>NA</u>
IL	-	2	3	-	3	4	1	2	1	1	3	-	4	-	1	-
IN	2	2	10	7	12	11	3	4	11	3	2	4	2	3	11	5
MI	2	2	16	-	14	11	3	11	7	-	4	1	1	5	14	-
MN	1	2	15	4	12	8	4	5	10	2	1	1	-	2	16	4
NY	-	5	10	6	16	14	1	9	10	-	3	3	1	7	9	4
OH	-	7	6	8	12	11	2	4	10	5	-	3	-	9	6	6
PA	5	6	5	5	15	12	3	6	11	1	4	-	-	9	10	2
WI	-	4	13	4	13	11	4	11	5	1	4	4	4	2	10	5
Total	10	30	78	34	97	82	21	52	65	13	21	16	12	37	77	26

## LEGEND

## PROBLEM:

S - Serious  
 M - Moderate  
 L - Low  
 UK - Not yet determined  
 NI - Information not  
 available

## TYPE OF CONTROL:

D - Direct  
 I - Indirect  
 NO - No controls

## INSTITUTION:

F - Federal  
 S - State  
 L - Local

## AUTHORITY EVALUATION:

BC - Best Control  
 LC - Least Control

## IMPLEMENTATION EVALUATION:

+ - Adequate implementation  
 - - Inadequate implementation  
 NI - Inadequate information to  
 complete evaluation



TABLE XXV

## Summary by States (Future Action)

STATE	Action Proposed by State Agencies					Contractors Suggested Additional Action		
	<u>A</u>	<u>I</u>	<u>NO NC</u>	<u>NA NI</u>	<u>R</u>	<u>A</u>	<u>I</u>	<u>R</u>
IL	2	2	1	-	-	-	-	1
IN	5	3	9	5	-	1	4	5
MI	1	4	8	7	-	1	2	4
MN	2	7	12	-	1	1	2	4
NY	9	12	3	1	1	1	2	6
OH	5	9	4	6	-	1	2	3
PA	3	16	1	3	-	1	1	5
WI	4	4	7	6	2	-	2	4
Total	31	57	45	28	4	6	15	32

## LEGEND

- A - Authority Improvement
- I - Implementation Improvement
- NO - No Action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed



TABLE XXVI

## Summary By Land Use Activity (Problem, Program and Evaluation)

Land Use Activity	Magnitude of the Problem				Program						Evaluation							
					Type of Control			Inst. Level			Authority		Implementation					
	<u>S</u>	<u>M</u>	<u>L</u>	<u>UK</u> <u>NI</u>	<u>D</u>	<u>I</u>	<u>NO</u>	<u>S/L</u>	<u>S</u>	<u>L</u>	<u>BC</u>	<u>LC</u>	<u>+</u>	<u>-</u>	<u>NI</u>	<u>NA</u>		
Const. Site Runoff	1	5	-	1	7	-	-	5	-	2	2	5	-	2	5	-		
Stormwater Runoff	1	1	-	6	8	8	-	2	-	6	-	2	1	-	1	6		
Agric. Pesticides	-	2	5	-	7	-	-	7	-	-	2	-	2	3	2	-		
Agric. Fertilizers	-	-	1	6	-	7	-	7	-	-	-	-	-	-	1	6		
Feedlot Opns.	1	3	3	-	3	2	2	2	-	3	1	4	-	2	4	1		
Farm Erosion	1	5	1	-	4	6	-	-	1	6	1	2	-	4	3	-		
Farm Drainage	-	-	7	-	-	7	-	-	3	4	-	-	-	2	5	-		
Solid Waste	1	2	3	1	7	4	-	-	-	7	1	-	1	4	1	1		
Sludge	-	2	4	1	7	1	-	5	-	2	-	1	1	2	3	1		
Private Sewage	2	4	-	1	7	5	-	-	-	7	2	2	-	7	-	-		
Transport. Runoff	-	1	6	-	7	1	-	6	-	1	2	-	-	-	7	-		

## LEGEND

## PROBLEM:

S - Serious  
M - Moderate  
L - Low  
UK - Not yet determined  
NI - Information not available

## TYPE OF CONTROL:

D - Direct  
I - Indirect  
NO - No controls

## INSTITUTION:

F - Federal  
S - State  
L - Local

## AUTHORITY EVALUATION:

B - Best Control  
LC - Least Control

## IMPLEMENTATION EVALUATION:

+ - Adequate implementation  
- - Inadequate implementation  
NI - Inadequate information to complete evaluation



TABLE XXVI (continued)

## Summary by Land Use Activity (Problem, Program and Evaluating)

Land Use Activities	Magnitude of the Problem				Program						Evaluation							
	<u>S</u>	<u>M</u>	<u>L</u>	<u>UK NI</u>	<u>D</u>	<u>Type Control</u>		<u>Inst. Level</u>			<u>Authority</u>		<u>Implementation</u>					
						<u>I</u>	<u>NO</u>	<u>S/L</u>	<u>S</u>	<u>L</u>	<u>BC</u>	<u>LC</u>	<u>+</u>	<u>-</u>	<u>NI</u>	<u>NA</u>		
Shoreline Excavation	-	-	4	4	8	6	-	5	-	3	3	-	2	-	6	-		
Dredging	-	-	4	4	8	5	-	6	-	2	3	-	2	-	5	1		
Pits & Quarries	1	1	4	1	3	3	3	4	-	-	-	-	1	3	1	2		
Mining	1	1	5	-	7	7	-	7	-	-	-	-	-	4	3	-		
Brines from Oil & Gas	1	1	5	-	5	2	2	5	-	-	1	-	-	2	4	1		
Recreation Runoff	-	-	7	1	1	8	-	3	1	4	1	-	-	-	7	1		
Shore & Bank Erosion	-	2	1	5	4	3	3	-	-	5	1	-	2	-	3	3		
Timber Production	-	-	6	1	2	6	-	6	-	1	1	-	-	2	4	1		
Woodland Grazing	-	-	6	1	1	1	5	2	-	-	-	-	-	-	6	1		
Wildlife Management	-	-	6	1	1	-	6	-	-	-	-	-	-	-	6	1		
TOTAL	10	30	78	34	97	82	21	65	13	52	21	16	12	37	77	26		

## LEGEND

## PROBLEM:

S - Serious  
 M - Moderate  
 L - Low  
 UK - Not yet determined  
 NI - Information not  
 available

## TYPE OF CONTROL:

D - Direct  
 I - Indirect  
 NO - No controls

## INSTITUTION:

F - Federal  
 S - State  
 L - Local

## AUTHORITY EVALUATION:

- Best Control  
 LC - Least Control

## IMPLEMENTATION EVALUATION:

+ - Adequate implementation  
 - - Inadequate implementation  
 NI - Inadequate information to complete  
 evaluation



TABLE XXVII

## Summary By Land Use Activity (Future Action)

Land Use Activities	Action Proposed By State Agencies					Contractors Suggested Additional Action		
	<u>A</u>	<u>I</u>	NO <u>NC</u>	NA <u>NI</u>	<u>R</u>	<u>A</u>	<u>I</u>	<u>R</u>
Const. Site Runoff	3	5	-	-	-	-	3	5
Stormwater Runoff	2	5	1	-	-	-	-	8
Agric. Pesticides	-	4	2	-	1	-	2	1
Agric. Fertilizers	-	-	4	-	3	-	-	-
Feedlot Opns.	3	6	-	1	-	-	1	5
Farm Eroison	4	7	-	-	-	-	-	2
Farm Drainage	-	-	5	2	-	-	-	-
Solid Waste	3	3	3	1	-	-	4	1
Sludge	2	2	1	2	-	6	-	1
Private Sewage	4	2	1	-	-	-	5	1
Transport. Runoff	-	2	3	2	-	-	-	-

## LEGEND

- A - Authority Improvement
- I - Implementation Improvement
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed



TABLE XXVII (continued)

## Summary By Land Use Activity (Future Action)

Land Use Activities	Action Proposed By State Agencies					Contractors Suggested Additional Action		
	<u>A</u>	<u>I</u>	NO <u>NC</u>	NA <u>NI</u>	<u>R</u>	<u>A</u>	<u>I</u>	<u>R</u>
Shoreline Excavation	2	2	3	1	-	-	-	4
Dredging	1	3	3	1	-	-	-	4
Pits & Quarries	1	2	3	1	-	-	-	-
Mining	1	3	2	1	-	-	-	-
Brines from Oil & Gas	1	2	3	1	-	-	-	-
Recreation Runoff	1	2	3	3	-	-	-	-
Shore & Bank Eroison	3	3	1	2	-	-	-	-
Timber Production	-	3	3	1	-	-	-	-
Woodland Grazing	-	-	2	5	-	-	-	-
Wildlife Management	-	1	2	4	-	-	-	-
TOTAL	31	57	45	28	4	6	15	32

## LEGEND

- A - Authority Improvement
- I - Implementation Improvement
- NO - No action
- NA - Not applicable
- NI - Information not available
- NC - No change
- R - Additional research needed



TABLE XXVIII

Comparison of Study Priority with Problem Magnitude Found

<u>Priority</u>	<u>Land Use Category</u>	<u>Number of Problems</u>			<u>Percent of Category</u> <sup>1</sup>		
		<u>Serious</u>	<u>Moderate</u>	<u>Low</u>	<u>Serious</u>	<u>Moderate</u>	<u>Low</u>
High	Urban Areas	2	6		25%	75%	
	Agriculture	2	10	17	7%	34%	59%
	Liquid, solid & deep-well						
	<u>Disposal Areas</u>	<u>3</u>	<u>8</u>	<u>7</u>	17%	44%	39%
	Subtotal	7	24	24	13%	44%	44%
Medium	Transportation						
	Corridors		1	6		14%	86%
	Shoreline Landfilling						
	<u>Activities</u>	—	—	<u>8</u>			100%
	Subtotal		1	14		7%	93%
Low	Extractive Operations	3	3	14	15%	15%	70%
	Recreational Areas			7			100%
	Forested Areas			18			100%
	Lakeshore and Riverbank						
	<u>Erosion</u>	—	<u>2</u>	<u>1</u>		67%	33%
	Subtotal	3	5	40	6%	10%	83%

1. Of those rated.



TABLE XXIX

## General Order of Problem Magnitude

Order of Problem Magnitude	Land Use Category	Percent of Category (those rated)		
		Serious	Moderate	Low
1.	Urban Areas	25%	75%	
2.	Liquid, solid and disposal areas	17%	44%	39%
3.	Extractive Operations	15%	15%	70%
	Agriculture	7%	34%	59%
	Lakeshore & Riverbank Erosion		67%	33%
4.	Transportation Corridors		14%	86%
5.	Shoreline Landfilling Activities			100%
	Recreational Areas			100%
	Forested Areas			100%



TABLE XXX

Comparison of Type Control with Magnitude of Problem

<u>Magnitude of Problem</u>	<u>Number of cases</u>	<u>Number of Cases of</u>			<u>Percent of Total</u>		
		<u>Direct</u>	<u>Indirect</u>	<u>No Control</u>	<u>Direct</u>	<u>Indirect</u>	<u>No Control</u>
Serious	10	10	8	0	100%	80%	0%
Moderate	30	25	15	2	83%	50%	7%
Low	78	42	36	15	54%	46%	19%
<u>Unknown</u>	<u>34</u>	<u>20</u>	<u>23</u>	<u>4</u>	<u>59%</u>	<u>68%</u>	<u>12%</u>
TOTAL	152	97	82	21	64%	54%	14%

TABLE XXXI

Comparison of Institutional Level of Control with Magnitude of Problem

<u>Magnitude of Problem</u>	<u>Number of Cases with Controls</u>	<u>Number of Cases of</u>			<u>Percent of Total Controls</u>		
		<u>State &amp; Local</u>	<u>State Only</u>	<u>Local Only</u>	<u>State &amp; Local</u>	<u>State Only</u>	<u>Local Only</u>
Serious	10	6	4		60%	40%	
Moderate	28	17	7	4	61%	25%	14%
Low	62	21	37	4	34%	60%	6%
<u>Unknown</u>	<u>30</u>	<u>8</u>	<u>17</u>	<u>5</u>	<u>27%</u>	<u>57%</u>	<u>17%</u>
TOTAL	130	52	65	13	40%	50%	10%



TABLE XXXII

Comparison of Types of Control With Authority Evaluation

Authority Evaluation	Number of Cases	Number of Cases of			Percent of Total which are		
		Direct	Indirect	No Control	Direct	Indirect	No Control
Best Controls	21	19	14	1	90%	67%	5%
Neither Best nor Least	115	68	59	18	59%	51%	16%
Least Controls	16	10	9	2	63%	56%	13%
TOTAL	152	97	82	21	64%	54%	14%

TABLE XXXIII

Comparison of Institutional Level of Control with Authority Evaluation

Authority Evaluation	Number of Cases With Controls	Number of Cases of			Percent of Total Controls		
		State & Local	State Only	Local Only	State & Local	State Only	Local Only
Best Controls	20	14	6		70%	30%	
Neither Best nor Least	97	28	59	9	29%	61%	9%
Least Controls	14	10		4	71%		29%
TOTAL	131	52	65	13	40%	50%	10%



TABLE XXXIV

Comparison of Types of Control with Implementation Evaluation

Implementation Evaluation	Number of Cases	Number of Cases of				Percent of Total which are			
		Both D & I	Direct Only	Indirect Only	No Control	Both D and I	Direct Only	Indirect Only	No Control
Adequate	11	7	3	-	1	64%	27%	-	9%
Inadequate	36	19	12	5	-	53%	33%	14%	-

TABLE XXXV

Comparison of Level of Control with Implementation Evaluation

Implementation Evaluation	Number of Cases	Number of Cases of			Percent of Total Controls		
		State & Local	State Only	Local Only	State & Local	State Only	Local Only
Adequate	10	4	4	2	40%	40%	20%
Inadequate	36	18	16	2	50%	44%	6%



TABLE XXXVI

Comparison of Ratings on Authority and Implementation

<u>Authority</u>	<u>Implementation</u>		<u>Implementation Percent</u>	
	<u>Adequate</u>	<u>Inadequate</u>	<u>Adequate</u>	<u>Inadequate</u>
Best Controls	8	6	57%	43%
Neither Best nor Least	4	26	13%	87%
Least Controls	—	5		100%
TOTAL	12	37	24%	76%



TABLE XXXVII

Comparison of Evaluation Ratings with State Agency and Contractor  
Suggestions

<u>Evaluation</u>		<u>State Agencies Recommend</u>				<u>Contractor Suggests</u>	
<u>Authority</u>	<u>Implementation</u>	<u>More Authority</u> <u>YES</u>	<u>NO</u>	<u>Better Implementation</u> <u>YES</u>	<u>NO</u>	<u>More Authority</u>	<u>Better Implementation</u>
Best Controls	Adequate	2					
			6	2			
	Inadequate	-			6		1
			6	6			1
Least Controls	Inadequate	4					
			1	3	2		2



TABLE XXXVIII

Comparison of Cases Lacking Information with Recommendations for Research

<u>Magnitude of Problem</u>	<u>Number of Cases Where Information Lacking on Implementation or Problem Magnitude</u>	<u>Additional Research Suggested by</u>	
		<u>State Agencies</u>	<u>Contractor</u>
Severe	3		3 (100%)
Moderate	8		5 (63%)
Low	57	1	5 (9%)
Unknown	34	3	17 (50%)
		—	—
TOTAL	102	4	30 (29%)



# TABLE XXVIII

Comparison of Evaluation Results with Other Agency and Contractor Recommendations

Evaluation Category	Other Agency Recommendation	Contractor Recommendation	Comparison of Results	
			Agree	Disagree
1. General	100	100	100	0
2. Specific	75	75	75	25
3. Detailed	50	50	50	50
4. Overall	25	25	25	75
5. Summary	10	10	10	90
6. Conclusions	5	5	5	95
7. Recommendations	2	2	2	98
8. Final Report	1	1	1	99
9. Total	100	100	100	0
10. Average	50	50	50	50
11. Standard Deviation	25	25	25	25
12. Coefficient of Variation	10	10	10	10
13. Correlation Coefficient	5	5	5	5
14. Regression Analysis	2	2	2	2
15. Factorial Design	1	1	1	1
16. ANOVA	1	1	1	1
17. T-Test	1	1	1	1
18. F-Test	1	1	1	1
19. Chi-Square	1	1	1	1
20. Fisher's Exact Test	1	1	1	1
21. McNemar's Test	1	1	1	1
22. Sign Test	1	1	1	1
23. Rank Sum Test	1	1	1	1
24. Wilcoxon Signed-Rank Test	1	1	1	1
25. Mann-Whitney U-Test	1	1	1	1
26. Kruskal-Wallis Test	1	1	1	1
27. Friedman Two-Way ANOVA	1	1	1	1
28. Cochran's Q Test	1	1	1	1
29. Fisher's Permutation Test	1	1	1	1
30. Monte Carlo Simulation	1	1	1	1
31. Bootstrap Resampling	1	1	1	1
32. Cross-Validation	1	1	1	1
33. Sensitivity Analysis	1	1	1	1
34. Scenario Analysis	1	1	1	1
35. Decision Tree Analysis	1	1	1	1
36. Expected Value Analysis	1	1	1	1
37. Risk Analysis	1	1	1	1
38. Cost-Benefit Analysis	1	1	1	1
39. Payoff Matrix	1	1	1	1
40. Game Theory	1	1	1	1
41. Linear Programming	1	1	1	1
42. Integer Programming	1	1	1	1
43. Dynamic Programming	1	1	1	1
44. Stochastic Programming	1	1	1	1
45. Multi-Objective Programming	1	1	1	1
46. Goal Programming	1	1	1	1
47. Data Envelopment Analysis	1	1	1	1
48. Network Analysis	1	1	1	1
49. Project Management	1	1	1	1
50. Simulation	1	1	1	1
51. Monte Carlo Simulation	1	1	1	1
52. Discrete Event Simulation	1	1	1	1
53. Agent-Based Simulation	1	1	1	1
54. System Dynamics	1	1	1	1
55. Fuzzy Logic	1	1	1	1
56. Expert Systems	1	1	1	1
57. Artificial Neural Networks	1	1	1	1
58. Genetic Algorithms	1	1	1	1
59. Particle Swarm Optimization	1	1	1	1
60. Ant Colony Optimization	1	1	1	1
61. Tabu Search	1	1	1	1
62. Simulated Annealing	1	1	1	1
63. Hill Climbing	1	1	1	1
64. Greedy Algorithms	1	1	1	1
65. Branch and Bound	1	1	1	1
66. Dynamic Programming	1	1	1	1
67. Linear Programming	1	1	1	1
68. Integer Programming	1	1	1	1
69. Stochastic Programming	1	1	1	1
70. Multi-Objective Programming	1	1	1	1
71. Goal Programming	1	1	1	1
72. Data Envelopment Analysis	1	1	1	1
73. Network Analysis	1	1	1	1
74. Project Management	1	1	1	1
75. Simulation	1	1	1	1
76. Monte Carlo Simulation	1	1	1	1
77. Discrete Event Simulation	1	1	1	1
78. Agent-Based Simulation	1	1	1	1
79. System Dynamics	1	1	1	1
80. Fuzzy Logic	1	1	1	1
81. Expert Systems	1	1	1	1
82. Artificial Neural Networks	1	1	1	1
83. Genetic Algorithms	1	1	1	1
84. Particle Swarm Optimization	1	1	1	1
85. Ant Colony Optimization	1	1	1	1
86. Tabu Search	1	1	1	1
87. Simulated Annealing	1	1	1	1
88. Hill Climbing	1	1	1	1
89. Greedy Algorithms	1	1	1	1
90. Branch and Bound	1	1	1	1
91. Dynamic Programming	1	1	1	1
92. Linear Programming	1	1	1	1
93. Integer Programming	1	1	1	1
94. Stochastic Programming	1	1	1	1
95. Multi-Objective Programming	1	1	1	1
96. Goal Programming	1	1	1	1
97. Data Envelopment Analysis	1	1	1	1
98. Network Analysis	1	1	1	1
99. Project Management	1	1	1	1
100. Simulation	1	1	1	1

Comparison of Cross Section Information with Recommendations for Research

TABLE XXVIII



THE LEGISLATIVE AND INSTUTIONAL FRAMEWORK  
TO CONTROL POLLUTION FROM LAND USE ACTIVITIES OF  
THE FEDERAL GOVERNMENT OF THE UNITED STATES  
IN THE UNITED STATES GREAT LAKES BASIN

FEDERAL FRAMEWORK

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IN SUBCONTRACT TO  
GREAT LAKES BASIN COMMISSION  
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## CHAPTER 1

### INTRODUCTION

#### 1.1 GENERAL

On April 15, 1972, the governments of Canada and the United States signed the Great Lakes Water Quality Agreement. As an integral part of this agreement, the International Joint Commission was asked to establish a Reference Group to study pollution in the Great Lakes system from agriculture, forestry, and other land uses.

Subsequently, the eighteen-member Pollution From Land Use Activities Reference Group was formed with an equal number of Canadian and United States members to answer the following three questions:

- (1) Are the boundary waters of the Great Lakes System being polluted by land drainage (including ground and surface runoff and sediments) from agriculture, forestry, urban and industrial land development, recreational and park land development, utility and transportation systems and natural sources?
- (2) If the answer to the foregoing question is in the affirmative, to what extent, by what causes, and in what localities is the pollution taking place?
- (3) If the Commission should find that pollution of the character just referred to is taking place, what remedial measures would, in its judgement, be most practicable; and what would be the probable cost thereof?

In order to provide an adequate response to this last question, the Reference Group proposed a series of studies to define all those remedial measures pertinent to the solution of the problem areas identified.

This study is specifically addressed to the review and the evaluation of the existing legislative/regulatory framework available for controlling pollution from land use activities.



Canada and the United States are jointly undertaking this study. They have asked the study participants to provide information on the following tasks:

- (1) Describe the content of the existing legislation/regulation framework available at each level of government (Federal, State, Special Purpose District, County and Municipal) for controlling the non-point discharges of sediments, nutrients, pesticides, and chemicals associated with the following land use categories:

	<u>Priority Rating</u>
(a) Urban Areas	H
(b) Transportation Corridors	M
(c) Extractive Operations	L
(d) Agriculture	H
(e) Recreational Areas	L
(f) Forested Areas	L
(g) Liquid, Solid and Deepwell Disposal Areas	H
(h) Shoreline Landfilling Activities	M
(i) Lakeshore and Riverbank Erosion	L

Special reference should be made to the provisions made at the local level for controlling these potential diffuse sources of pollution.

- (2) Describe the extent of the regulatory power, the commitment to develop and undertake programs and the degree of enforcement practiced at each of the specified levels of government relative to pollution from land use activities.
- (3) Identify other relevant government and non-governmental programs and policies which would have an indirect bearing on the control of pollution from land use activities (i.e., sediments, nutrients, pesticides and chemicals).
- (4) Identify those land use categories for which the four major pollutants (sediments, nutrients, pesticides and chemicals) are least controlled.
- (5) In terms of the present jurisdictional framework (i.e., State and County), outline what possibilities for future action are available to each level of government. This would include an analysis of the constitutional limitations operating at each level of government and the potential of the existing legislative/regulatory framework for controlling non-point sources of pollution.
- (6) Describe the alternatives for the future evolution of this legislative/regulatory framework based on discussions with those persons actively working with the present framework.



- (7) Coordination between the Canadian contractors and the United States to develop a standardized format for comparing the legislative and regulatory approaches taken in each country.

This report addresses these tasks and presents the findings of the legislative review and interviews with State and local officials.

The report is divided into four chapters. Chapter 1 is this "Introduction." Chapter 2, "Definitions and Methodology," presents the definitions of land use activities for which control is needed, the types of pollution controls that are the components of a legislative framework and the methodology for the analysis. Chapter 3, "Institutional and Legislative Framework," presents the federal institutional structure and legislative framework for the control of nonpoint pollution. This Chapter includes a discussion of how each land use activity is currently controlled, how much it contributes to nonpoint source pollution, and the strengths and weaknesses of the current legislation. The final Chapter, "Future Actions," identifies actions that may be taken in the future. The comparative analysis of the different states in the Great Lakes Basin will identify alternatives that could be implemented through legislative changes.



## CHAPTER 2

### DEFINITIONS AND METHODOLOGY

#### 2.1 GENERAL

This Chapter is divided into three sections, which present the definitions of the land use activities, the control components, and a summary of the methodology used to develop this report. The land use activities used are those that PLUARG has found may cause non-point pollution and are presented in priority of concern as identified by PLUARG. The control components are compatible with those used in the legislative report for the Canadian side of the Great Lakes Basin. The methodology is divided into three steps -- data collection, analysis, and evaluation and identification of future actions -- with the component parts of each step summarized.

#### 2.2 LAND USE ACTIVITIES

The Reference Group has identified the land use activities which may contribute to pollution. The activities are grouped into land use categories, and the priority of concern is identified.<sup>1</sup>

- (1) Urban Areas -- high priority. This category has two land use activities -- site runoff from construction activities and stormwater runoff. These areas are the densely settled, built-up areas generally including those economic activities requiring the concentration of firms and the work force.
- (2) Agriculture -- high priority. This category has five land use activities -- application of pesticides, application of fertilizers, feedlot operations, erosion from general farm practices, and drainage. An agricultural area is defined as those lands including structures actively committed to the production of food and fibre.
- (3) Liquid, Solid and Deepwell Waste Disposal Areas -- high priority. There are three land use activities -- solid waste disposal, liquid sludge disposal and deepwell disposal. This category includes those areas used for landfills, land application of wastewater effluents and the injecting of wastes into subsurface geological formations.



- (4) Transportation Corridors -- medium priority. One land use activity is considered -- runoff from construction, maintenance and use of transportation facilities. These facilities include highways and roads, airports, railroads, and utility corridors.
- (5) Shoreline Landfilling Activities -- medium priority. This category has two land use activities -- land or construction excavations and dredging. There is no definition as to the distance from the water's edge in which controls should be enforced.
- (6) Extractive Operations -- low priority. Three land use activities have been identified -- pits and quarries, mining, and the disposal of brines from oil and gas operations. The land areas covered are those taken by the removal and primary processing of materials from either bedrock or surface deposits.
- (7) Recreation Areas -- low priority. Three land use activities have been identified -- runoff related to specific recreational activities, pesticide use and private waste disposal. This category includes public and private lands designated for recreational use.
- (8) Forested Areas -- low priority. Four land use activities have been identified as sources of pollution -- timber production, woodland grazing, wildlife management and recreation.

### 2.3 CONTROL COMPONENTS

Research by the contractor and the Canadian contractors has identified six control components which can be applied in different combinations and to different degrees in controlling land use activities which have the potential of causing non-point pollution in a specific area. The components identified are:<sup>2</sup>

- PC - Direct Pollution Control -- where a specific activity is controlled by law or regulation through preventive or reactive means. Preventive control is where a proposed or continuing activity must receive approval from a designated agency prior to the implementation, or at periodic intervals. Reactive control is where an activity may proceed without prior approval, but is subject to control retroactivity if standards are violated. An example of a preventive control is requiring a permit for activities within a specific distance from a lake or stream. A reactive control is the fining of a governmental highway department for a fish kill that resulted from inadequate control of runoff from a road construction project.
- P - Planning -- where a plan of a specific activity must be submitted prior to implementation of the activity, or where a local or State agency develops a general or specific plan, including water quality considerations, which must be followed in approving and/or implementing specific



actions. Examples of this would be a site plan showing the stormwater and site runoff control measures to be employed during and after development and a comprehensive land use plan for a locality.

- OS - Indirect Control -- where an act or regulation has been implemented for another major purpose, but will have an indirect impact on controlling non-point pollution. An example of this type of control is the review and licensing of sanitary landfill operators to insure that the landfill does not become a health hazard.
- NS - Non-Statutory Control -- programs that are not in direct response to a legislative mandate, but which are designed to reduce pollution. This includes educational and citizen participation programs and technical assistance provided to various client groups. An example is the soil conservation courses of an agricultural extension agent or a State agency assisting a locality in developing a comprehensive plan.
- MP - Management of Public Lands -- the guidelines adopted by a public agency on how it will maintain the lands that it owns. This also includes how the agency views its responsibilities in responding to the controls of other public agencies. An example is the practice of right-of-way maintenance practiced by a department of transportation and its response to sedimentation controls imposed by a pollution control agency.
- F - Fiscal Incentives or Disincentives -- where public agencies provide monetary incentives to other public agencies or private groups or individuals to assist in the implementation of pollution abatement programs. A disincentive is where costs are imposed without assistance or an activity requires payment of an additional tax. An example of an incentive is the agricultural cost sharing program, while a disincentive is the higher taxing of an individual who does not provide adequate drainage on his land.

#### 2.4 METHODOLOGY

The methodology used in preparing this report is designed to address three major objectives:

- first, to present the salient points of the federal legislation that controls nonpoint sources of pollution;
- second, to present a summary of the federal institutional structure and identify the key factors in controlling nonpoint pollution; and
- third, to provide an evaluation of the legislation and its implementation and to identify future actions which are anticipated at this time.



The meeting of these objectives is accomplished through a multi-phased process. An Initial Inventory of Legislation and a questionnaire requesting information on a magnitude of problems and the degree of implementation were prepared and sent to appropriate Federal, State and, where necessary, local officials. The answers, comments and additional information received form the basis for writing a description of the institutional structure, problems and current activities of each State and the Federal government. These descriptions provide the basis for the development of evaluation questions which are used in the interviews of Federal, State or local officials.

Interviews were conducted with the Federal PLUARG representative and additional officials involved in implementing and enforcing the legislation and regulations. Information from the interviews is used to update the previously written drafts and to evaluate the legislative framework. The resulting Draft Report is reviewed by GLBC, the people interviewed, and PLUARG Task A Committee members to verify data and the analysis. The comments received are incorporated into a Final Report.

The remaining sections of this report are organized so the objectives are clearly addressed. Chapter 3 is a summary of the institutional structure and legislative framework. The legislative framework is divided into the land use activities with each discussed in terms of magnitude of problem, current activities, and evaluation of those activities. Chapter 4 is an analysis of the legislative framework, and the conclusions drawn by the contractor.

The second half of the report, Part II, is an identification of the salient points of the Federal legislation that controls non-point sources of pollution. It is the objective of this part to provide the user with additional information on specific legislation so that the transfer of the information between political jurisdictions can be facilitated.



## FOOTNOTES -- CHAPTER 2

- 1 International Reference Group on Great Lakes Pollution from Land Use Activities, Detailed Study Plan Supplement, August 1976, International Joint Commission, p. 8. (Also see "Summary Review of Pollution from Land Use Activities" for a more detailed description.)
- 2 Castrilli, J.F., Pollution from Land Use Activities Reference Group: Legislative Study Interim Report No. 1, Urban Areas, Canadian Environmental Law Research Foundation, May 1976. Supplemented a Task A Committee meeting June 15, 1977, Detroit, Michigan, and letter of July 26, 1977 by G. Bangay, Coordinator, Land Drainage Studies, Environmental Protection Service, Canada Center for Inland Waters, Burlington, Ontario.



## CHAPTER 3

### INSTITUTIONAL AND LEGISLATIVE FRAMEWORK

#### 3.1 GENERAL

This Chapter presents the Federal institutional structure and the legislative framework for non-point pollution control. Section 3.2 describes the structure of the Federal agencies involved in non-point pollution control and summarizes the key acts each agency is responsible for implementing.

Section 3.3 presents the legislative framework in matrix form, followed by a discussion of current Federal activities and an evaluation of those activities.

#### 3.2 INSTITUTIONAL STRUCTURE AND AUTHORITY

Different Federal agencies share non-point pollution control responsibilities. Table I presents those agencies. An asterisk (\*) indicates the key agencies.

TABLE I

#### AGENCIES WITH RESPONSIBILITIES IN NON-POINT POLLUTION CONTROL

<u>Agency</u>	<u>Responsible Administrative Unit</u>
*Environmental Protection Agency	Office of Water Planning and Standards Office of Water Program Operation Office of Pesticide Programs Office of Water Enforcement Office of Solid Waste
Department of Agriculture	*Agricultural Stabilization and Conservation Service *Soil Conservation Service *Forest Service *Farmers Home Administration



TABLE I  
(Continued)

<u>Agency</u>	<u>Responsible Administrative Unit</u>
Department of Commerce	*National Oceanic and Atmospheric Administration
Department of the Army	*Corps of Engineers
*Department of Housing and Urban Development	Community Planning and Development National Floor Insurance Program
*Department of Interior	U.S. Fish and Wildlife Service Bureau of Outdoor Recreation Geological Survey Bureau of Land Management
*Department of Transportation	Federal Highway Administration
*Council on Environmental Quality	
*Water Resources Council	
Small Business Administration	

### 3.2.1 Environmental Protection Agency

The purpose of the Environmental Protection Agency is to protect and enhance our environment today and for future generations to the fullest extent possible under the laws enacted by Congress. The agency's mission is to control and abate pollution in the areas of air, water, solid waste, pesticides, noise and radiation. It must achieve this through the development and implementation of an integrated coordinated attack on environmental pollution in cooperation with State and local governments. The approach integrates a variety of research, monitoring, standard setting, and enforcement activities.

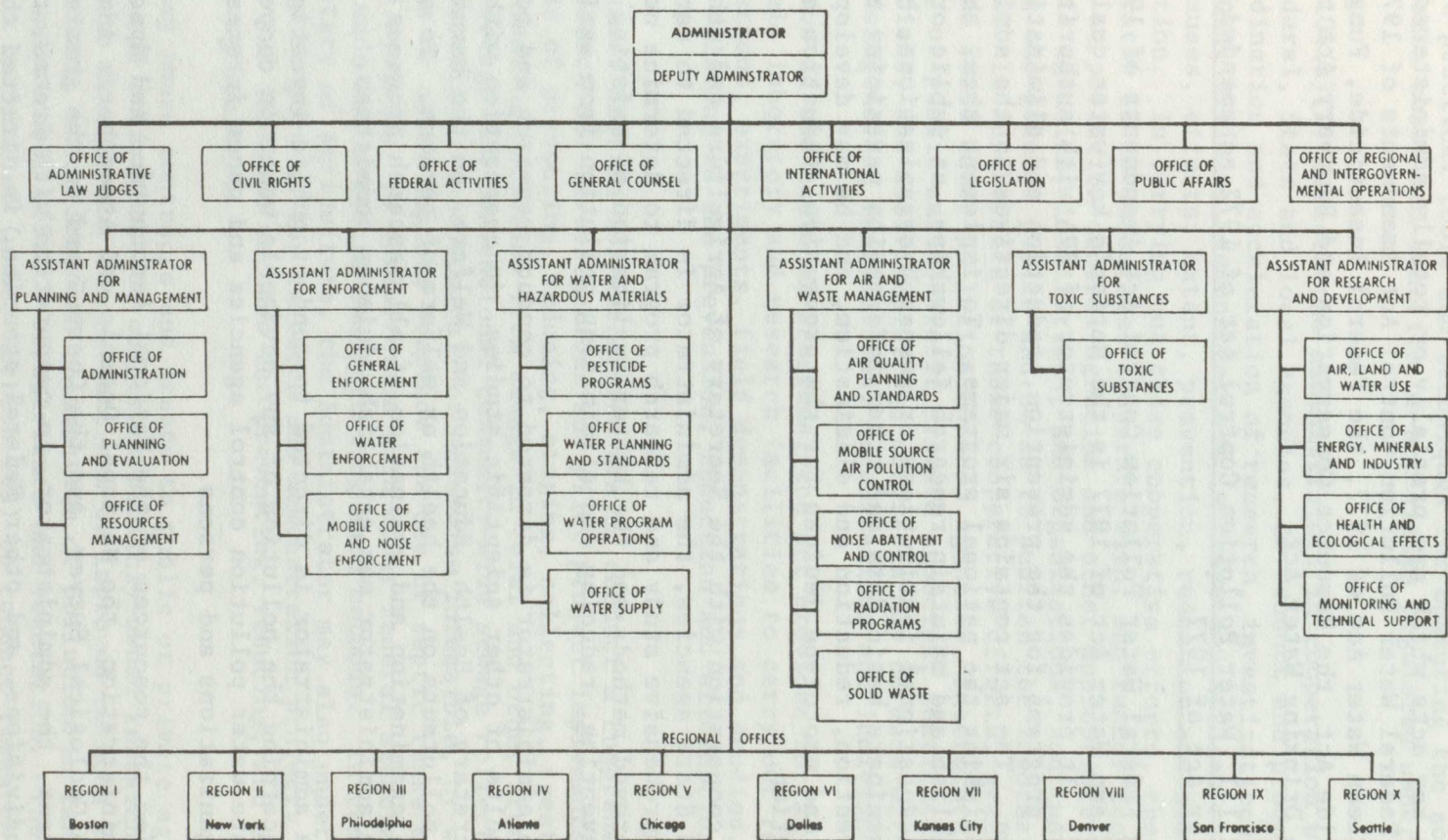
EPA is headed by an administrator who is assisted by a deputy administrator and six assistant administrators. Each assistant administrator heads a functional area made up of one to five offices. There are also ten regional offices throughout the country. There are also labs. This organizational structure is presented in Figure 1.

EPA's water quality activities represent a coordinated effort to restore the Nations's waters. The functions of this program include the development of national programs, technical policies and regulations for water pollution control and water supply; water quality standards and effluent guidelines development; technical direction, support, and



FIGURE 1

# ENVIRONMENTAL PROTECTION AGENCY





evaluation of regional water activities; development of programs for technical assistance and technology transfer; and provision of training in the field of water quality.<sup>2</sup>

The key acts which are partially or totally administered by the EPA are the Federal Water Pollution Control Act Amendments of 1972 as amended by the Clean Water Act of 1977, the Federal Insecticide, Fungicide and Rodenticide Act, the Resource Conservation and Recovery Act of 1976 and the Safe Drinking Water Act.

#### 3.2.1.1 Water Pollution Control Act of 1972 as amended by the Clean Water Act of 1977

The Federal Water Pollution Control Act Amendments of 1972 as amended by the Clean Water Act of 1977 is the Nation's key water quality improvement act. It provides the administrator of EPA with authority to establish national programs for the prevention, reduction and elimination of pollution. The act contains six major directives to the administrator in establishing the national programs. To implement them, the administrator may establish and maintain research fellowships, at public or nonprofit private educational institutions or research organizations, he may collect and disseminate basic data and other information pertaining to pollution and its prevention, reduction and elimination, and he may develop processes, methods and prototype devices for the prevention, reduction and elimination of pollution.

1. In cooperation with the Secretary of Agriculture and other Federal and State agencies, the administrator is directed to carry out a comprehensive study and research program to determine new and improved methods and the better application of existing methods of preventing, reducing and eliminating pollution from agriculture.
2. The administrator is directed to conduct research and to survey the results of other scientific studies, in cooperation with the Secretary of Health, Education and Welfare, on the harmful effects of pollutants on the health or welfare of persons. To assist in the examination and evaluation of all research progress and proposals the administrator may establish advisory committees.
3. The administrator is directed to conduct public investigations concerning the pollution of any navigable water in cooperation with State water pollution control agencies and other interested agencies, organizations and persons.
4. Using the resources of the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, the Geological Survey, and the Coast Guard to the greatest practical extent, the administrator, in cooperation with States, their political subdivisions, and other Federal agencies, is directed to establish, equip, and maintain a water quality surveillance system for the purpose of monitoring the quality of navigable waters and groundwaters and the contiguous zone and the oceans.



5. The administrator is directed to initiate and promote the coordination and acceleration of research to develop the most effective practical tools and techniques for measuring the social and economic costs and benefits of activities regulated under the act.
6. Section 104(a)(1) directs the administrator, in cooperation with other Federal, State and local agencies, to conduct and promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys and studies relating to the causes, effects, extent, prevention, reduction and elimination of pollution. In carrying out these cooperative efforts, the administrator is to encourage, cooperate with, and render technical services to pollution control agencies and other appropriate public or private agencies, institutions, and organizations, and individuals, including the general public and he is to publish the information developed. In furtherance of these cooperative efforts, grants may be made to State water pollution control agencies, interstate agencies, or public and nonprofit private agencies, institutions, organizations, and individuals, and contracts may be made with public or private agencies, institutions, organizations and individuals.

In addition to the national programs, the act provides for at least seven field laboratory and research facilities to carry out research, investigations, experiments, field demonstrations and studies, and training relating to the prevention, reduction and elimination of pollution.

The Act under Section 105 authorizes EPA to conduct a comprehensive program of research and investigations and pilot project implementation to develop methods of preventing, reducing, storing, collecting, treating or otherwise eliminating pollution from sewage in rural and other areas where collection of sewage and conventional community-wide sewage collection systems is impractical, uneconomical, or otherwise infeasible, or where soil conditions or other factors preclude the use of septic tanks and drainage field systems. In consultation with other Federal agencies grants may be made for projects demonstrating such methods. In consultation with the Secretary of Agriculture, the Administrator may also under Section 105 make grants to persons for research and demonstration projects with respect to new and improved methods for preventing, reducing, and eliminating pollution from agriculture.

The EPA may award contracts and grants to public or private agencies, organizations, and individuals to construct publicly-owned research facilities and to develop and demonstrate new or improved methods for the prevention, removal, reduction, and elimination of pollution in lakes, including the undesirable effects of nutrients and vegetation. The administrator is authorized (under Section 103) to conduct research and technical development work and to make studies concerning the quality of the waters of the Great Lakes, and is authorized (Section 104) to finance up to 75% of the cost of projects, undertaken pursuant to agreements with any State, political subdivision, interstate agency, or other



public agency, to demonstrate new methods and techniques and to develop preliminary plans for the elimination or control of pollution, within any part of the watersheds of the Great Lakes.

The EPA under Section 104 may conduct, promote, and encourage comprehensive studies of the effects of pollution, including sedimentation, in the estuaries and estuarine zones of the United States. This program is to be undertaken in cooperation with the Secretary of the Army, the Secretary of Agriculture, the Water Resources Council, and other appropriate Federal, State, interstate or local public bodies in private organizations, institutions and individuals. The studies are to examine the effect of pollution on fish and wildlife, on sport and commercial fishing, on recreation, on water supply and water power, and on other beneficial purposes.

Under Section 104 authority is given to conduct research and investigations on devices, systems, incentives, pricing, policy and other methods of reducing the total flow of sewage, including, but not limited to, unnecessary water and waste treatment services. In addition, (Section 104) the administrator is directed to conduct a comprehensive program of research and investigation and pilot project implementation for new and improved methods for the combined treatment and disposal of solid waste and collection and treatment of sewage and other liquid wastes.

To implement solutions, the EPA may make grants to any State, municipality, or intermunicipal or interstate agency, for up to 75% of the cost of projects, approved by the State water pollution control agency, that demonstrate new or improved methods of preventing, reducing and eliminating the discharge of pollutants from sewers which carry stormwater or both stormwater and pollutants, and projects that demonstrate advanced waste treatment and water purification methods or new and improved methods of joint treatment systems for municipal and industrial wastes. Grants also may be made and contracts awarded to persons for up to 75% of the cost of projects for research and demonstration of new or improved methods, having an industrywide application, for treating industrial wastes or otherwise preventing pollution by industry. Grants also may be made, without an apparent statutory cost sharing requirement, to a State, States, or interstate agency to demonstrate, in river basins or portions thereof, advance treatment and environmental enhancement techniques to control pollution from all sources, including non-point sources.

Under Section 404 the Secretary of the Army may, after notice and opportunity for public hearing, issue general permits on a State, regional, or nationwide basis for any category of activities involving discharges of dredged or fill material if the Secretary determines that the activities in such category are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment.

The Governor of any State desiring to administer its own individual and general permit program for the discharge of dredged or fill material



may submit to the EPA a description of the program it proposes to establish and administer under State law or under an interstate compact.

EPA must make a determination with respect to any program submitted by a State within one-hundred-twenty days after the date of the receipt of the program application or the program is deemed approved.

Section 201 (c) provides that to the extent practicable waste treatment management shall be on a statewide and an areawide basis. Section 208 (f) (1) authorizes EPA to make grants available to pay the reasonable costs of developing and operating a continuing areawide waste treatment management planning process. In addition, the Administrator is authorized to consult with and to provide technical assistance to the agency responsible for developing the management plan.

The planning grants are made to the designated agency, which within one year must have in operation a continuing statewide-areawide waste treatment management planning process. In not more than two years an initial plan must be prepared, certified by the Governor, and submitted to the administrator. This program is discussed in more detail 3.3.1 Water Quality Management Planning.

Under Section 201 (g) (1) of the act EPA may make grants to any State, municipality, or intermunicipal or interstate agency for the construction of publicly owned treatment works. Under Section 201 (g) (5) EPA is authorized to make grants to any State, municipality, or intermunicipal or interstate agency for the construction or improvement, of treatment works if the grant applicant has satisfactorily demonstrated to the Administrator that innovative and alternative waste-water treatment processes and techniques have been fully studied and evaluated by the applicant.

#### 3.2.1.2. Federal Insecticide, Fungicide and Rodenticide Act

The Federal Insecticide, Fungicide and Rodenticide Act is the Nation's key act in controlling the manufacture, sale and transportation of pesticides. The Act provides the EPA with authority to classify pesticides, to require the certification of applicators of pesticides, and to require the states to submit plans which will identify the standards for certification and the state agency responsible for administering the certification and control program.

The EPA must establish standards identifying which pesticides can be used, how they can be used, who can use them, and the training necessary for the users, prior to his application of the pesticides. These standards then become the basis under which the state program is evaluated and certified as meeting the requirements of the Act. Once the program is certified, the EPA may enter into a cooperative agreement with the state to enforce the Act.

#### 3.2.1.3 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act is the prime act for the EPA to provide technical and financial assistance for the development of management plans and facilities to recover energy and other resources



from discarded materials, and for the safe disposal and discard of those materials. The Act also regulates the management of hazardous wastes.

Under the Act, the EPA promulgates rules establishing the standards that relate to the disposal of hazardous wastes, including transportation, treatment, storage and disposal facilities. The program also uses the approach of using the standards to evaluate a state program which is then certified by EPA. Upon certification, funding assistance is granted to the State.

The Act also addresses solid waste management and requires EPA to promulgate regulations containing guidelines to assist in the development and implementation of solid waste management plans. The regulations must detail the minimum requirements for approval of a state plan. The state plan must prohibit open dumping of solid or hazardous wastes and develop a timetable or schedule for the elimination of all existing dumps.

To implement the Act, a grant program is established to provide financial and technical assistance to states, counties, municipalities and intermunicipal agencies for implementation of programs to provide solid waste management for research recovery, resource conservation services and hazardous waste management.

#### 3.2.1.4 Safe Drinking Water Act, Part C

The Environmental Protection Agency administers the Safe Drinking Water Act, which is designated to assist states in the establishment of state programs to insure safe drinking water for all individuals using public systems. The states are required to establish a program and have prime responsibility for the implementation, while the EPA provides technical and financial assistance, as well as certification of the state program. Part C of the Act addresses underground disposal of wastewater and requires State underground injection control programs. The program does not include the insertion of brines from oil and gas operations, unless it can be shown that such activity will endanger drinking water from underground sources.

#### 3.2.2 Department of Agriculture

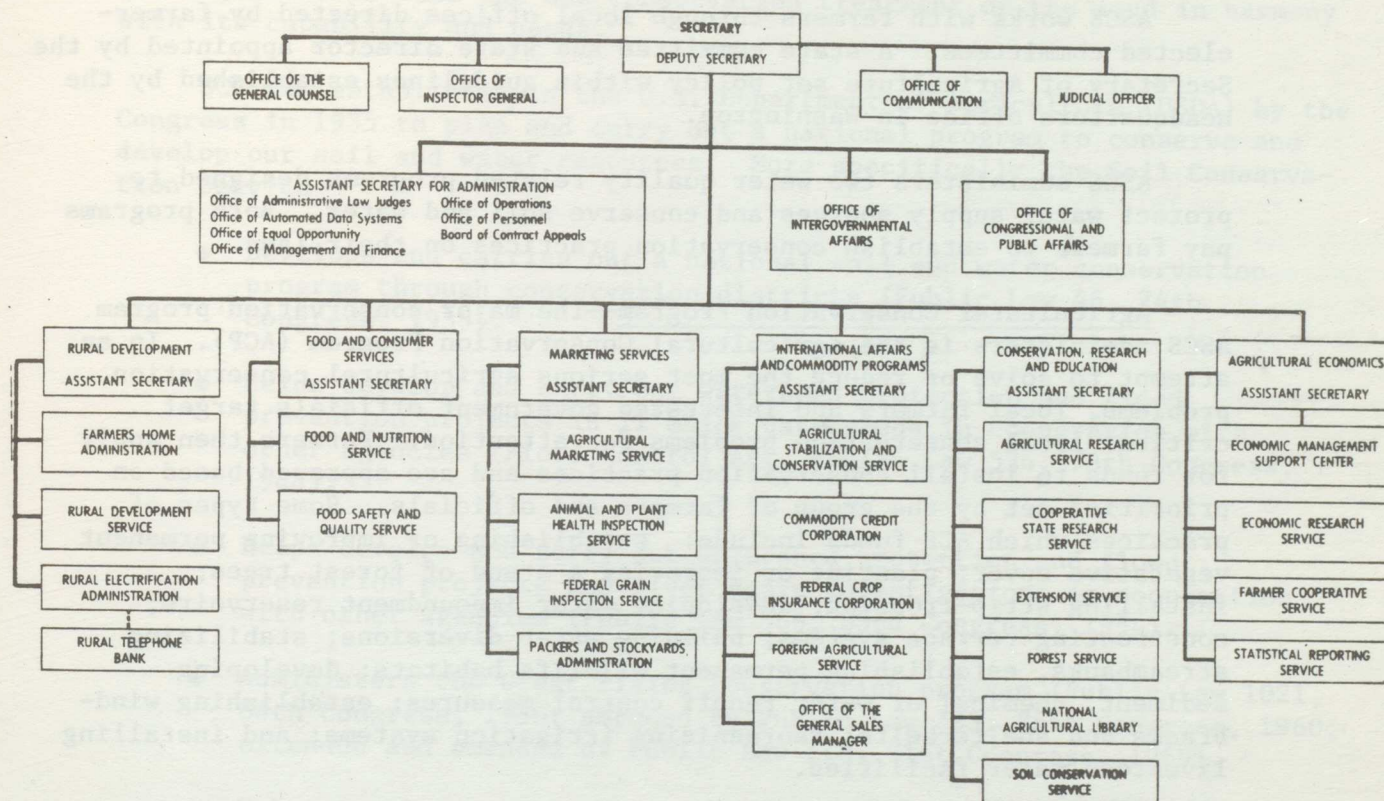
The Department of Agriculture is directed by law to acquire and diffuse useful information on agriculture-related subjects in the most general and comprehensive way. To accomplish this purpose, the department functions in the areas of research, education, conservation, marketing, food inspection, nutrition, agricultural adjustment, surplus disposal and rural development. The Department was created by Act of Congress, approved May 15, 1862.

The Department is headed by a Secretary, who is supported by a Deputy Secretary and six Assistant Secretaries who oversee the operations of 17 agencies which provide service to the agricultural and rural communities, and to consumers of agricultural products. The organization of the department is presented in Figure 2.



FIGURE 2

# DEPARTMENT OF AGRICULTURE



On September 18, 1973, the Department entered into an interagency agreement with the U.S. Environmental Protection Agency which provides that the Department's programs will be utilized to help implement Section 208 water quality management plans.

The Rural Clean Water Program, recently authorized by the Clean Water Act of 1977, will be described in Section 3.2.2.2, under the Soil Conservation Service.

Four agencies of the Department administer programs related to water quality.

## 3.2.2.1 Agricultural Stabilization and Conservation Service

The Agricultural Stabilization and Conservation Service (ASCS) administers federal farm programs designed to preserve farm income and conserve agricultural land. Objectives of the agency include:

- (1) improving the economic stability of agriculture by helping farmers to achieve supply-demand balances to meet domestic and foreign market demand and provide a reasonable return on the farmer's investment;
- (2) maintaining an adequate and even flow of quality products to market at reasonable prices for both producers and consumers; and
- (3) improving and protecting soil, water and air resources by helping farmers carry out specified conservation and land use practices.



ASCS works with farmers through local offices directed by farmer-elected committees. A state committee and state director appointed by the Secretary of Agriculture set policy within guidelines established by the headquarters office in Washington.

ASCS administers two water quality related programs designed to protect water supply sources and conserve soil and water. Both programs pay farmers to establish conservation practices on their land.

Agricultural Conservation Program--The major conservation program ASCS administers is the Agricultural Conservation Program (ACP). In an attempt to solve or reduce the most serious agricultural conservation problems, local farmers and interested government officials target critical local conservation problems for attention. Farmers then apply for funds to install conservation practices and are approved based on priorities set by the group of farmers and officials. Some types of practices which ACP funds include: establishing or improving permanent vegetative cover; planting or improving a stand of forest trees; installing strip-cropping; developing water impoundment reservoirs; constructing terrace systems; building water diversions; stabilizing streambanks, establishing permanent wildlife habitats; developing sediment, chemical or water runoff control measures; establishing wind-breaks and shelterbelts; reorganizing irrigation systems; and installing livestock water facilities.

Farmers who are approved to participate receive up to 75 percent of the cost of establishing the conservation practices on their land with an annual maximum of \$2,500. Most agreements are annual although long-term agreements ranging from three to ten years are available. For fiscal year 1978, \$190 million has been appropriated for this program.

Water Bank Program--ASCS also administers the Water Bank Program, (WB) which compensates participating farmers for maintaining wetlands and providing additional habitat for nesting and brooding places of migratory waterfowl. This program is primarily concentrated in the northern part of the Mississippi river and central waterfowl flyways--the north-south migratory air routes used by waterfowl. Only specially designated counties operate this program.

Farmers who live in designated areas with land containing or adjacent to inland fresh-water marshes or inland open fresh water and are willing to devote at least 10 acres of wetland or adjacent acreage are eligible. Payments compensate the farmer for not harvesting crops or grazing the land or draining, burning, filling or clipping the designated acreage. For fiscal year 1978, \$10 million has been appropriated for this program.

#### 3.2.2.2 Soil Conservation Service

The Soil Conservation Service (SCS) gives technical assistance to individuals, groups, organizations, cities and towns, and county and state governments in reducing the costly waste of land and water resources and in putting to good use these national assets.



The objective is wise use and conservation treatment of the land in harmony with its capability and needs.

SCS was established in the U.S. Department of Agriculture (USDA) by the Congress in 1935 to plan and carry out a national program to conserve and develop our soil and water resources. More specifically the Soil Conservation Service--

- Develops and carries out a national soil and water conservation program through conservation districts (Public Law 46, 74th Congress, 1935).
- Helps develop and carry out watershed protection and flood prevention projects in 11 major watersheds in cooperation with other agencies (Flood Control Act, Public Law 534, 78th Congress, 1944).
- Helps develop and carry out watershed protection and flood prevention projects and river basin investigations in cooperation with other agencies (Public Law 566, 83rd Congress, 1954).
- Administers the Great Plains conservation program (Public Law 1021, 84th Congress, 1956; amended by Public Law 793, 86th Congress, 1960; extended and amended by Public Law 118, 91st Congress, 1969).
- Helps local sponsors develop and carry out multicounty resource conservation and development projects (Food and Agriculture Act, Public Law 703, 87th Congress, 1962).
- Helps develop USDA's conservation cost-sharing programs. Is responsible for assisting in the preparation of long-term conservation plans of operation and for most of the permanent conservation practices provided by these programs. Provides technical assistance to participating farmers and ranchers and prepares designs and specifications for work undertaken.
- Has primary responsibility for the national cooperative soil survey.
- Heads the national land inventory and monitoring activity.
- Makes and coordinates snow surveys for water supply forecasting in the west.
- Appraises potential for outdoor recreation developments. Helps establish income-producing recreation areas on privately owned land and in public water-based recreation and fish and wildlife areas in watershed protection and resource conservation and development projects.
- Gives technical assistance to land users participating in the conservation credit program of the Farmers Home Administration.



- Provides technical assistance to communities and units of government on land use planning and helps them in obtaining the needed technical data on land, water, and related resources.
- Helps the Department of Interior to administer the Surface Mine Reclamation Act (Public Law 95-87).

SCS helps individuals and groups mainly through conservation districts. These districts are organized under state law by local people. They are managed by an elected and unsalaried board made up of local citizens. SCS is the only federal agency that receives appropriations from the Congress earmarked for assistance to conservation districts.

Each district is legally responsible under State law for soil and water conservation work within its boundaries (usually the same as those of a county), just as a county is responsible for roads or a school district for education. Districts operate under the guidance of a State commission, board, or committee usually appointed by the Governor.

SCS is helping more than 2 million land users who are cooperators with 2,950 conservation districts throughout the Nation. Almost 200 of these districts include land within the Great Lakes basin. This help includes:

1. A soil map of the land unit and needed interpretations; a range-site and range-condition map of rangeland; a woodland-suitability map of woodlands.
2. Information about the different safe uses and adapted crops (including grasses, trees, and wildlife) for each kind of soil.
3. Information about conservation measures needed on each kind of soil for each of the different safe uses, including waste disposal.
4. Information on the potential and limitations of the different kinds of soil for various uses to help city and county officials, developers, contractors, and builders.
5. On-site assistance to the land user in making a conservation plan for his land unit and to groups of land users to assist them in treating problems common to the group.
6. Technical assistance in designing, laying out, and checking the construction and maintenance of dams, terraces, and other structures; in selecting plant varieties, seeding methods and rates, and cultural practices to establish grass or trees as planned; and in solving problems that arise in managing pastures, woodlands, wildlife habitat, or water quality.
7. Assistance to units of government in inventoring their natural resources and planning for wise use of the resources, including water quality.



SCS and the districts originally worked mostly with farmers and ranchers. But in recent years because of the demand in nonfarm and urban sectors for services from conservation districts, many states have broadened their district programs or amended the enabling acts to authorize help on all land uses. Thus, SCS and the districts have extended their services to nonfarm rural land users as well as to urban land users. This has been particularly true in areas of rapid urban expansion, changing land use, or water quality management planning under Section 208.

The Soil and Water Resources Conservation Act of 1977 (Public Law 95-192) directs the Secretary of Agriculture to, "Continuously appraise soil and water related resources, develop and periodically update a national program for effective and orderly development of these resources, and to report to the Congress on the program's progress and effectiveness". Furthermore, the Secretary is to include broad public involvement in carrying out this law. The Soil Conservation Service has been assigned leadership for these activities which consider both the quality and quantity of soil, water, and related resources.

Probably the most important recent Federal legislation relating to the reduction of nonpoint source pollution is an Amendment to Section 208 of Public Law 92-500 which is contained in Section 35 of the Clean Water Act of 1977. This Amendment establishes a Rural Clean Water Program for cost-sharing with owners and operators of rural land for the purpose of installing and maintaining best management practices to control nonpoint source pollution. This program will be administered by the Secretary of Agriculture acting through the Soil Conservation Service and other applicable agencies of the Department of Agriculture. Cost-sharing, on a five to ten year contract basis, will be limited to 50 percent except in special cases. Implementation of this program will be limited to those areas where EPA has approved a Section 208 Water Quality Management Plan and the practices to which the contracts apply must be certified by the water quality management agency to be consistent with such plans. Priority will be given to areas and sources that have the most significant effect on water quality.<sup>3</sup>

The Secretary of Agriculture will enter into agreements with soil and water conservation districts, State soil and water conservation agencies, or State water quality agencies to administer all or part of the program. Congress authorized to be appropriated \$200,000,000 for fiscal year 1979 and \$400,000,000 for fiscal year 1980 to carry out this program.

#### 3.2.2.3 Farmers Home Administration

There are numerous programs operated by the Farmers Home Administration (FHA) which contribute to the alleviation of agricultural runoff and other nonpoint source pollution. These contributions take the form of technical assistance and grants and loans to rural landowners and public bodies.



They are:

- Water and Waste Disposal Systems for Rural Communities Program,
- Soil and Water Loan Program,
- Irrigation, Drainage, and Other Soil and Water Conservation Loans,
- Watershed Protection and Flood Prevention Loans.

The basic statutory authority under which these programs are carried out is the Consolidated Farmers Home Administration Act of 1961, as amended, most recently by Title I of the Rural Development Act of 1972. While FHA administer its own grant and loan programs, some programs of other agencies of the Department of Agriculture are in part funded from appropriations to the Farmers Home Administration.

Under the Consolidated Farm and Rural Development Act, the Farmers Home Administration is authorized to make grants to public bodies and other agencies "having authority to prepare comprehensive plans for the development of water or waste disposal systems in rural areas." Rural areas for which the plan is prepared may not include any area in any city or town that has a population of 10,000 inhabitants.

To qualify for planning grants, the applicant organization must not have the resources immediately available to finance the planning for which the grant is proposed.

Under Section 306 of the same Act, the FHA is authorized to make loans and grants for the construction of rural community water and waste disposal systems serving rural residents; loans are also made to help finance irrigation and recreational facilities and watershed projects. This program is known as the Water and Waste Disposal Systems for Rural Communities.

The loans are available to public entities such as municipalities, counties, and special purpose districts. Nonprofit corporations may also receive loan assistance when adequate plans for loan repayments are made. The FHA gives priority to municipal borrowers in communities with a population less than 5,500. These loans may be used to restore a deteriorating water supply and to improve, enlarge, or modify a water system or an inadequate sewer system. Grants are also available for the development of wastewater and waste disposal facilities for projects serving financially needy communities and to reduce family user costs to a reasonable level.

Also under Section 306 of the Consolidated Farm and Rural Development Act, the Soil and Water Loan Program is established and administered by the FHA. The Program makes loans to eligible applicants for irrigation, drainage, and other soil conservation measures. For purposes only of



land and water development, use and conservation, loans may be made, guaranteed, or insured to farm tenants, farm owners, members of a partnership that owns and operates a farm, and to corporations engaged in farming. There is no limitation on the size of the farm, with respect to loans under this authority. Corporations may receive loans if the corporation and its principal stockholders haven't the resources or the credit to carry out the purposes of the loan. This authority is in addition to that provided above for farm ownership loans.

Furthermore, the Program applicants must plan to use the loan to improve a farm that will "produce agricultural commodities in sufficient quantities that the proceeds from their sale will be a substantial portion of the operator's total cash income." When the soundness of the loan depends upon the farming operation, training or farm experience is required. A farm tenant, to qualify, must have a lease for a period sufficient for him to obtain a reasonable return on the improvements.

Loans may be made for the cash costs of materials, supplies, equipment, and services directly related to land and water development, use and conservation, for acquiring a source of water to be used on land the applicant owns or is acquiring, and to purchase land or an interest in land for a site or right-of-way for a water or drainage facility.

The Farmers Home Administration has in the past made direct loans to eligible applicants under the Soil Conservation Service programs for watershed protection and flood prevention, and for resource conservation and development. These loans were made from the FHA direct loan account. The program is known as the Watershed Protection and Flood Prevention Loan Program. Loans awarded under the program are to provide technical and financial assistance to carry out works of improvement to protect, develop, and utilize the land and water resources in small watersheds. The authority to administer the loan program is under the Watershed and Flood Prevention Act as amended.

Assistance is provided in planning, designing and installing watershed works of improvement; in sharing costs of flood prevention, irrigation, drainage, sedimentation control, fish and wildlife developments, and public recreation; and in extending long-term credit to help local interests with their share of the costs. Watershed area must not exceed 250,000 acres. Capacity of a single structure is limited to 25,000 acrefeet.

Financial assistance ranges from \$20,000 to \$10,000,000.

Any state agency, county or groups of counties, municipality, town or township, soil and water conservation district, flood prevention or flood control district, or any other nonprofit agency with authority under state law to carry out, maintain and operate watershed works of improvement may apply for assistance. Projects are subject to the A-95 review process and an environmental assessment.



#### 3.2.2.4. Forest Services

The Forest Service has the Federal responsibility for national leadership in "forestry." This includes participation in setting national priorities, formulating programs and establishing Federal policies that relate to man and his national environment, especially the forest-related environment.

The National Forests, administered by the Forest Service under the general direction of the Secretary of Agriculture, came into being in 1891 when Congress adopted an act that empowered the President to set aside forest reserves for the purpose of "securing favorable conditions of water flows and to furnish a continuous supply of timber for the use and necessities of the citizens of the United States." The Organic Act of 1897 constitutes the law under which the National Forests are administered: it provided, among other things, for the creation of the forest reserves only for purposes of producing timber and protecting water supply.<sup>4</sup>

The Weeks Law of 1911 established authority for cooperation with States and for purchase of lands to add to the National Forest System. The Clarke-McNary Act of 1924 established authority for cooperative forestry programs with the states. The Cooperative Forest Management Act of 1950 expanded authority for cooperation with states by providing technical assistance for landowners and timber processors.

In addition, forest areas may come under the jurisdiction of the Forest Service through monies appropriated from the Land and Water Conservation Fund, which are not allocated for particular purposes in the appropriations act. These funds may be allocated by the President for, among other things, acquisition of land, waters or interests in land or waters within: (1) wilderness areas in the national forest system, (2) within other areas of national forests, as boundaries of the forests existed on January 1, 1965, which have value primarily for outdoor recreation, and (3) adjacent lands outside a national forest that would comprise an integral part of a forest recreation management area. No more than 500 acres may be added to any one forest from lands outside the forest boundary, and no more than 15 percent of all acreage added to national forests with Land and Water Conservation Fund monies may be west of the 100th meridian. While this legislation provides for the funds to acquire forest lands, authority to acquire the lands must otherwise be granted by law.

In administering lands under its jurisdiction, the Forest Service is authorized to expend money for the investigation and establishment of water rights, including the purchase of water rights, lands, or interests in lands or rights-of-way for use and protection of water rights necessary or beneficial in connection with the administration and public use of national forests.



All waters within the boundaries of national forests may be used for domestic, mining, milling, or irrigation purposes, under the law of the state wherein such national forests are situated, or under the laws of the United States and rules and regulations established thereunder. As administered and interpreted, this provision does not confer a right to water needed to carry out the purposes of the National Forests.

Municipal water supply is one of the purposes for which lands and waters under Forest Service jurisdiction may be managed, and more than 1,100 watersheds are managed for the purpose. Congress has given its consent to states to enter into agreements to conserve forests and water supplies and the Secretary may grant permits for, inter alia, use of rights-of-way over Federal forest lands for water conduits, dams, and reservoirs. Municipalities obtaining their water supplies from a national forest may enter into cooperative agreements for the protection of the watershed from which the water is secured. The lands on the watershed may be withdrawn from all forms of location and entry, although the municipality must pay for the loss of revenues arising when timber and other resources are withheld from disposition.

To combat erosion problems along the shores of artificial lakes in national forests the Service stabilizes shorelines by constructing protective works such as gabions, piling, and rip-rap, and providing for revegetation. Protective works are also constructed along shorelines of streams where streambank erosion is a menace to developed or usable land areas. These protective works are designed to help prevent destruction caused by shifting stream channels.

The Wilderness Act of 1964 (78 Stat. 890, 16 U.S.C. 1131-36) establishes a Wilderness Preservation System. Under the Act areas designated as wilderness areas are to be managed so as to preserve the wilderness character of the area. The President may authorize prospecting for water resources, the establishment and maintenance of reservoirs, water conservation works and certain other facilities in these areas.

The Forest Service exercises the responsibility of the Secretary of Agriculture under the Wild and Scenic River Act, to study rivers and adjacent areas in national forests for designation as wild, scenic or recreation river areas. Congress designated nine rivers, five of which are administered by the Department. Areas designated are to be administered so as to preserve or enhance wild, scenic and recreation values, and restrictions are imposed on the construction of water resource projects that affect the areas designated.

The Secretary has authority to sell forest tree seed and nursery stock to states and their political subdivisions and to cooperate on a matching fund basis with the various states in the procurement, production and distribution of forest tree seeds and plants for the establishment of forests, windbreakers, shelter belts and farm wood lots on denuded or nonforested lands.



The Secretary may enter into cooperative agreements under which forest lands are, with the approval of the National Forest Reservation Commission, acquired in the name of the United States to be administered by the cooperating state pursuant to a management plan approved by the Secretary. One-half the proceeds accruing from the lands are to be sent to the federal treasury to reimburse the federal costs of acquisition. When those costs have been repaid, title is transferred to the states.

The Secretary is authorized to cooperate with state foresters in providing technical services to private forest landowners and operators, and processors of private forest products. Pursuant to an agreed upon plan, assistance is provided both for management of forest lands and for the harvesting, marketing and processing of forest products. Further, the Secretary may provide technical and financial assistance to states in carrying out approved plans for forest land tree planting and reforestation on federal and non-federal lands. Advice, education, demonstrations and similar measures may be undertaken in cooperation with land grant colleges and universities and other state agencies to aid in establishing, protecting and managing wood lots, shelter belts, windbreaks, and other forest growth.

The Secretary may enter into cooperative agreements with private owners for the coordinated management of private and federally owned forest lands. Areas subject to the agreements are to be designated so as to provide, inter alia, maintenance of water supply, regulation of streamflow, prevention of soil erosion, amelioration of climate and preservation of wildlife. Under the agreements, the Secretary approves a sustained yield management plan, and the timber and other forest products on the federal and non-federal lands are managed and harvested pursuant to the provisions of the plan.

In addition, the Secretary has a general mandate to conduct investigations, experiments and tests to determine, demonstrate, and promulgate the best methods of reforestation and of growing, managing, and utilizing timber, forage, and other forest products, of maintaining favorable conditions of water flow and the prevention of erosion, or protecting timber and other forest growth from fire, insects, disease, or other harmful agencies, of obtaining the fullest and most effective use of forest lands, and to determine and promulgate the economic considerations which should underlie the establishment of sound policies for the management of forest land. In carrying out this mandate, the Secretary may cooperate with individuals, and public and private agencies, organizations and institutions.

Cooperative agreements with states may be entered into to encourage and assist programs of forestry research.

In 1974, Congress passed the Forest and Rangeland Renewable Resources Planning Act (RPA) (PL 93-373, 88 Stat. 476). This act directs the Secretary of Agriculture to develop a long-range program for the Nation's



renewable resources that will assure an adequate supply of forest and range resources in the future while maintaining the integrity and quality of the environment. Specifically, the act requires an immediate assessment of the resource situation and then a 44-year program: a 4-year plan for 1977-80 and a plan for each of the four decades following through the year 2020. Woven into the Program are the essential elements of the environmental impact analysis set forth in the National Environmental Policy Act (NEPA) of 1969. The very nature of such a comprehensive program, which includes several alternative plans, demands that evaluating the potential effect of proposed actions on the environment be an integral part of the planning process.<sup>5</sup>

### 3.2.3. Corps of Engineers

The civil functions of the Corps of Engineers (COE) were authorized by various acts of Congress from 1824 to the present. In particular, the Rivers and Harbors Act of 1899 and the Water Pollution Control Act Amendments of 1972 provide broad authority for the COE to regulate actions in navigable waters and wetlands.

Initially, the Corps of Engineers was given responsibility for work on rivers and harbors for navigation. Over the years, responsibilities in the fields of flood control, hydroelectric power, municipal and industrial water supply, recreation, and planning for all functions of water resources development were added by statute. The program is administrated by the Secretary of the Army, who reports to the President through the Office of Management and Budget, without involving the Secretary of Defense.

The Corps regulates dredging or filling in coastal and inland waters and in wetlands under Section 404, Federal Water Pollution Control Act Amendments of 1972. The purpose of the "404" permit program, is to ensure that the chemical/biological integrity of waters of the United States is protected from the irresponsible and unregulated discharges of dredged or fill material that could permanently destroy or alter the character of these resources. However, Section 404 of the Federal Water Pollution Control Act of 1972 as amended by the Clean Water Act of 1977 may change the Corps of Engineers involvement in the 404 program. Under the Act, States who desire to administer their own individual and general permit program may do so if approved to EPA. Federal guidelines that list requirements for application and approval have not been published. The effect of this Act cannot be determined at this stage.

Under the operating program COE is required to provide for the consideration of all public concerns environmental, social and economic -- in the decision-making process to either issue or deny permits. As part of its responsibility to protect water quality, the Corps of Engineers' Section 404 permit program has been extended to many areas that have never been regulated before.

The Corps of Engineers expanded its authority in a three-phase program over a 2-year period.



Phase I, effective July 25, 1975, extended the Corps' regulation of disposal of dredged or fill material to the traditional "navigable waters of the United States" and contiguous or adjacent wetlands. Phase II, effective Sept. 1976, expanded the Corps' permit program into primary tributaries of navigable waters of the United States, lakes, and the contiguous or adjacent wetlands. After July 1, 1977, the Corps exercise its Section 404 authority over all U.S. waters.

Along with the discharge of material which has been dredged or excavated from any waters of the United States, the following additional types of activities will also be regulated by this program: site development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection and/or reclamation devices such as rip-rap, groins, seawalls, breakwaters, bulkheads, and fills; beach nourishment; levees; sanitary landfills, and backfill required for the placement of structures such as sewage treatment facilities.

The Section 404 permit program does not include farming practices such as plowing, cultivating, seeding, and harvesting for the production of food. Nor does it apply to such farm and ranch conservation practices as terracing, land leveling, and the construction of check dams unless they occur in a water of the United States. However, damming of major streams, diking, and the discharge of dredged or fill material in wetlands associated with farm practices will require permits.

The Corps provides assistance to states and localities in preparing 208 studies upon request.<sup>6</sup>

Comprehensive river basin studies by the Corps stem from specific Congressional authorization and the Water Resources Planning Act of 1965. Studies are coordinated with other Federal and local agencies and seek the objectives of the 1944 and subsequent Flood Control Acts and Public Law 89-80. Section 206 of the Flood Control Act of 1960 authorized the Secretary of the Army through the Chief of Engineers, at the request of state and responsible local governmental agencies, to compile and disseminate information on floods and flood damages, and provide general criteria for local guidance in planning the use of flood plains and engineering advice on reducing the flood hazards.

Such studies, known as Flood Plain Information Studies, are made largely at Federal expense within the limits of appropriated funds. Local interests are encouraged to provide mapping, aerial photography, stream gauges and similar relevant assistance and information.

Section 103 of the River and Harbor Act of 1962 (P.L. 87-874), as amended, provides authority for the Chief of Engineers to develop and construct small shore and beach restoration and protection projects that have not already been specifically authorized by Congress. Each project under Section 103 must be complete, economically justified, and limited to a Federal cost of not more than \$1,000,000, including any Federal share of periodic nourishment cost.



Section 7 of the River and Harbor Act approved August 8, 1917, authorizes the Secretary of the Army to prescribe such regulations for the use, administration, and navigation of the navigable waters of the United States as public necessity may require for the protection of life and property, or for operations of the United States in channel improvement, covering all matters not specifically delegated by law to some other executive department.

Section 10 of the River and Harbor Act, approved March 3, 1899, prohibits the placing of any structures in or over any navigable waters of the United States outside established Federal harbor lines, or excavating from or depositing material in such waters, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. The instrument of authorization is designated as a permit.

Section 11 of the River and Harbor Act, approved March 3, 1899, authorizes the Secretary of the Army to cause harbor lines to be established where it is made manifest to him that establishment is essential for the preservation and protection of the harbor.

#### 3.2.4 Department of Commerce, National Oceanic and Atmospheric Administration

The National Oceanic and Atmospheric Administration (NOAA) was formed on October 3, 1970, by Reorganization Plan 4 of 1970. Its principal functions are authorized by Title 15, Chapter 9, United States Code (National Weather Service); Title 33, Chapter 17, United States Code (National Ocean Survey); and Title 16, Chapter 9, United States Code (National Marine Fisheries Service). NOAA's mission was further defined by the Coastal Zone Management Act of 1972, the Marine Mammals Protection Act of 1972, the Weather Modification Reporting Act of 1972, the Endangered Species Act of 1973, and the Offshore Shrimp Fisheries Act of 1973.

The mission of NOAA is to explore, map, and chart the global ocean and its living resources, to manage, use and conserve those resources and to describe, monitor, and predict conditions in the atmosphere, ocean, sun and space environment, issue warnings against impending destructive natural events, develop beneficial methods of environmental modification, and assess the consequences of inadvertent environmental modification over several scales of time. The agency conducts research and development aimed at providing alternatives to ocean dumping, and provides Federal leadership in promoting wise and balanced management of the Nation's coastal zone, including the award of grants to states for developing and carrying out plans for the management of their coastal zones.

##### 3.2.4.1. Coastal Zone Management Act

The Coastal Zone Management Program (CZM) was created within the National Oceanic and Atmospheric Administration, Department of Commerce, to implement the Coastal Zone Management Act of 1972.



The purpose of the Coastal Zone Management program is to encourage and assist states in developing their own coastal management program, to coordinate state activities, and to safeguard the regional and national interests in the coastal zone. A state coastal zone management program is a plan for the control of land and water areas in the coastal zone as well as a method of implementing this plan. State programs are expected to achieve wise use of land and water resources of the coastal zone, giving full consideration to ecological, cultural, historic, and aesthetic values, as well as to the needs for economic development.

The Coastal Zone Management Program awards matching grants to coastal states and territories in three categories: (1) two-thirds support of the cost of developing a management program; (2) two-thirds support of the cost of administering an approved management program; and (3) one-half support of the cost of acquiring, developing, and operating estuarine sanctuaries for research and educational purposes.

Once the Secretary of Commerce approves a state program all Federal activities in the coastal zone, or which may effect the coastal zone -- including grants, loans, licenses, and permits -- must be conducted in a manner consistent with the approved program.

States have three years to develop a management program. The program must meet CZM rules and regulations concerning program approval and the application for an administrative grant. These regulations specify that before an administrative grant is awarded to a state its CZM program must meet the following criteria.

Coastal Zone Boundaries: Determination of the inland boundary and the extent of the territorial sea or of state waters in the Great Lakes; identification of transitional and intertidal areas, salt marshes, wetlands, and beaches; identification of all land owned or held in trust by the Federal government.

Permissible Uses: Determination of land and water uses having a "direct and significant" impact on coastal waters and identification of those uses that seem permissible. States should develop a method for assuring that use decisions are made in an objective manner, applying the best available information concerning land and water capability and suitability. The development of indices for determining environmental and economic impact is suggested as an essential analytical step needed to give substance and clarity to those uses which are deemed permissible. When a state prohibits a specific use within the coastal zone, it must give its reasons.

Areas of Particular Concern: Inventory and designation of the following: areas of unique, fragile habitat or historical or scenic significance; areas of high natural productivity or essential habitat for living resources; areas of recreational value; areas where developments and facilities are dependent on utilization of,



or access to, coastal waters; areas of unique geological significance; areas of urban concentrations; areas of significant hazard from storms, slides, flood erosion, subsidence; areas needed to protect, maintain, or replenish coastal lands, including coastal flood plains, aquifer recharge areas, sand dunes, beaches, offshore sand deposits and mangrove stands.

Areas of Preservation: This designation is closely linked to the areas of particular concern. A state must establish standards and criteria for designation of coastal areas intended for preservation and restoration because of their conservation, recreational, ecological, or esthetic values. The fact that a state may be unable to move ahead with the acquisition of certain of these properties because of temporary funding difficulties should not prevent the state from designating these areas in order of priority.

Priority Uses: Priority guidelines should be set forth, indicating the degree of state interest in the preservation, conservation, and orderly development of specific areas throughout the coastal zone. This designation of priorities will provide the basis for regulating land and water uses in the coastal zone and serve as a common reference point for resolving conflicts. A state must show that a method has been developed for: (1) analyzing state needs that can be met most effectively and efficiently through land and water uses in the coastal zone, and (2) determining the capability and suitability of meeting these needs in specific locations of the coastal zone.

State Control: The management program must show that the state can control each permissible land and water use and preclude those not permissible. The administrative grant application should list relevant state constitutional decisions and other appropriate documents or actions that establish the state's legal basis for such controls. It is the states' responsibility to establish the means of control, that is, to have the legal capability to implement the objectives, policies and individual components of the management program.<sup>8</sup>

### 3.2.5. Department of Housing and Urban Development

The overall purpose of the Department of Housing and Urban Development (HUD) is to assist in providing for sound development of the nation's communities and metropolitan areas. The Department was created to: administer the principal programs which provide assistance for housing; to assist the President in achieving maximum coordination of various Federal activities which have a major effect upon urban communities, suburban or metropolitan development; to encourage solutions to housing problems; to encourage maximum contributions that may be made by vigorous private building and mortgage lending industries to housing, urban development, and the national economy. The Department of Housing and Urban Development was established by<sup>9</sup> the Department of Housing and Urban Development Act of September 9, 1965.



The Department is administered by a Secretary and is divided into 13 operational units and 10 regional offices. An organizational chart is presented in Figure 3.

The Department of Housing and Urban Development has two main interests in water resources: encouragement of planning activities by municipalities and other local governments on the most geographically and functionally comprehensive basis possible, and provision of adequate basic water supply and sewer facilities in urban areas, particularly in the context of such coordinated comprehensive planning. These interests are implemented through several programs administered by the Department. The Department also administers the Flood Insurance Program. The following programs are of interest with regard to controlling non-point pollution:

Section 701 -- Comprehensive Planning Assistance Program.

National Flood Insurance Program.

#### 3.2.5.1 Section 701 - - Comprehensive Planning Assistance Program

Section 701 of P.L. 83-560 provides the authority to establish the comprehensive assistance planning program. The program is intended to strengthen planning and decision making in community metropolitan and nonmetropolitan areas.

A broad range of planning and management activities may be supported by 701 grants. These activities include improving government capability to: develop goals, allocate resources, and manage programs; build or strengthen governmental institutions and areawide structures that address and respond to community development issues; improve governmental systems; and improve intergovernmental planning and coordination. Current funding priorities including housing and land use planning and plan implementation activities. Eligible applicants include: state agencies designated by the governor; areawide planning agencies, including councils of governments; counties; cities; local development districts; economic development districts; Indian tribal bodies; and localities which have suffered a major disaster or which are Federally impacted. Applications are subject to the A-95 review process.

HUD and EPA recently entered into an interagency agreement with coordinates the 701 land use element and 208 planning.<sup>10</sup>

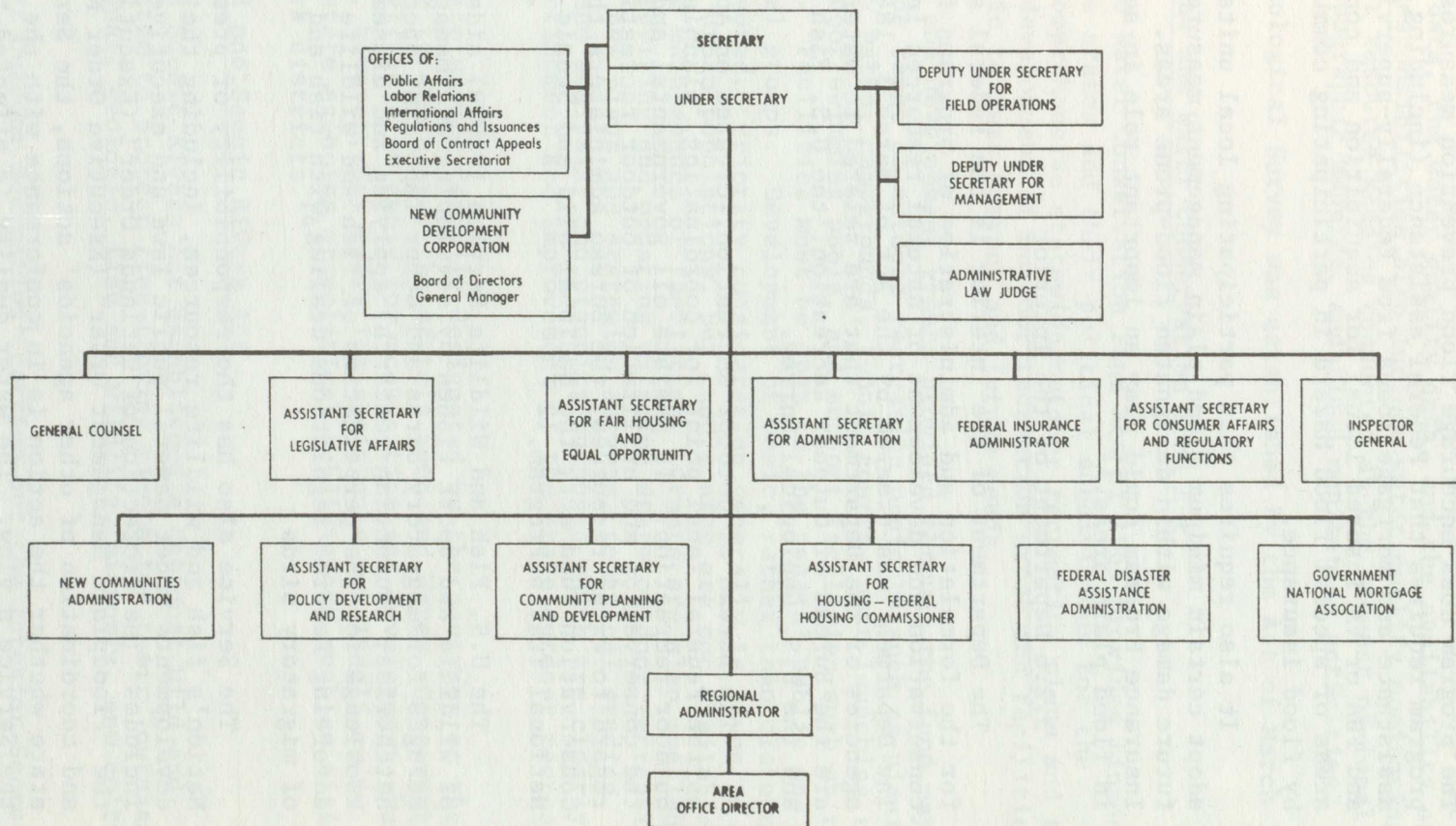
#### 3.2.5.2 National Flood Insurance Act of 1968

The National Flood Insurance Act of 1968 (P.L. 90-448), is amended by Housing and Urban Development Act of 1968 (P.L. 91-152), and Housing and Community Development Act of 1974 (P.L. 93-383), Flood Disaster Protection Act of 1973 (P.L. 93-234), is amended by Housing Authorization Act of 1976 (P.L. 94-375), Housing and Community Development Act of 1977 (P.L. 95-128) and creates the National Flood Insurance Program.



FIGURE 3

# DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT





The National Flood Insurance Program is primarily designed to enable persons to purchase insurance against losses resulting from physical damage to or loss of real or personal property arising from floods or mudslides. The program does encourage flood prevention measures (soil erosion). The program requires that Federal assistance (including flood related disaster assistance and mortgage loans from Federally-supervised lending institutions and FHA or VA insured loans) for acquisition and construction purposes in areas of special flood hazard in participating communities be protected by flood insurance.

It also requires that participating local units of government adopt certain minimum flood plain management measures to reduce or avoid future damage within designated flood-prone areas. The National Flood Insurance Program could play an important role in setting land use patterns in flood plain areas.<sup>11</sup>

### 3.2.6 Department of the Interior

The Department of the Interior is the Federal agency responsible for the formulation and administration of programs for the management conservation and development of natural resources in the United States. The Department was created by the Act of March 3, 1849. Subsidiary agencies of the Department that are related to water quality management are the Bureau of Outdoor Recreation, the U.S. Fish and Wildlife Service, and the U.S. Geological Survey.

The Bureau of Outdoor Recreation,<sup>1</sup> created on April 2, 1962, serves as the Federal focal point for coordinating, planning, and financing public outdoor recreation. It assists all governmental and private interests in the conservation and utilization of outdoor recreation resources. With regard to water resources, the Bureau administers the Land and Water Conservation Fund Act, the National Wild and Scenic River System and the National Trails Program.<sup>12</sup>

The U.S. Fish and Wildlife Service (USFWS) aids in the conservation of wildlife and sport fishes by developing and managing a system of wildlife refuges for migratory birds and other important species; operating fish hatcheries; conducting research; applying and disseminating technical knowledge for the perpetuation of fish and wildlife resources; and enforcing Federal regulations dealing with fish and wildlife and management of migratory birds.

The Service also has the responsibility of preserving and protecting the Nation's fish and wildlife resources, including their habitat, from man's developments under several public laws and executive orders. The latter includes "The Protection of Wetlands Order" (Executive Order No. 11990) and the "Floodplain Management Order" (Executive Order No. 11988). In the review and coordination of other agencies' actions, the Service has been asked to state whether the action is in conformance with the Executive Orders in the Service's view. The water quality is affected by actions in both wetlands and in floodplains. The public laws include the Fish and Wildlife Coordination Act and the Endangered Species Act.

1. Reorganization occurred after this Report (December 1977) was prepared.



The U.S. Geological Survey (USGS) is responsible for research, field data collection, and dissemination of information dealing with the physical features of the United States and its mineral and water resources. It compiles information on rivers and drainage areas including the stream flow data, the water quality data, and the availability of ground water. Responsibilities also include water quality monitoring cooperative water resource studies conducted at the request of local units of government topographic mapping, and flood monitoring activities.

The U.S. Geological Survey was established by the Act of March 3, 1879.<sup>13</sup>

#### 3.2.6.1 Land and Water Conservation Fund Act

The Land and Water Conservation Fund Act of 1965 provides financial assistance to the states and their political subdivisions for the preparation of comprehensive statewide outdoor recreation plans and the acquisition and development of outdoor recreation areas and facilities for the general public to meet current and future needs.

Acquisition and development grants provided through the fund may be used for a wide range of outdoor recreation projects such as picnic areas, inner city parks, campgrounds, tennis courts, boat launching ramps, bike trails, outdoor swimming pools, and support facilities such as roads and water supply. Facilities must be open to the general public and not limited to special groups. Development of basic, rather than elaborate, facilities is favored. Priority consideration generally is given to projects serving urban populations, but fund monies are not available for the operation and maintenance of facilities. Grants are also available to states for: revising and updating existing state outdoor recreation plans; preparing new plans and statewide surveys, technical studies, data collection and analysis; and planning purposes which are clearly related to the refinement and improvement of the state outdoor recreation plan.

Only the state agency formally designated by the governor or the state legislature to administer the state's Land and Water Conservation Fund Program is eligible to apply for acquisition and development grants. The state agency, however, may apply for assistance for itself or on behalf of other state agencies or political subdivisions such as cities, counties, and park districts.<sup>14</sup>

#### 3.2.6.2 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act established a National Wild and Scenic Rivers System to protect free-flowing rivers for their "outstanding scenic, recreational, geologic, fish and wildlife, historic, and cultural values."

The Bureau of Outdoor Recreation<sup>1</sup> carries out the Interior Secretary's responsibility for studying those rivers assigned to the Department to determine: (1) the Department's qualifications for inclusion in the system; (2) the lands which are needed to preserve the rivers' free-flowing character and to enable optimum public use and enjoyment; and (3) the most appropriate form of administration. The Secretary reports the findings

1. Reorganization occurred after this Report (December 1977) was prepared.



to the President and recommends whether or not the river should be included in the Wild and Scenic Rivers System. Rivers are added to the System by Federal legislation or, if the river is to be state-administered, by the Secretary of the Interior upon application by the state governor.<sup>15</sup>

The Bureau of Land Management (BLM) and the Forest Service also have the authority to make studies. The Forest Service studies are confined to forested lands. The Bureau of Land Management is authorized to make studies on publicly owned land. The BLM does not own land in the Great Lake Basin.

#### 3.2.6.3 Fish and Wildlife Coordination Act

The purpose of the Fish and Wildlife Coordination Act is to give fish and wildlife resources equal consideration with other resources in federal, or federally-permitted and licensed, water developments. Water quality at, or because of, these projects as it affects fish and wildlife resources, is a major concern.

The Fish and Wildlife Service carries the responsibility of studying, coordinating, and reporting the effects, including water quality, of the water developments on the fish and wildlife resources. The Service is required to coordinate with the appropriate state fish and wildlife agencies on each project. The Service, in its report, makes recommendations to the development agencies that minimize or eliminate adverse effects of the project on fish and wildlife resources including the projects' polluttional effects on the water and thence on the natural resources.

#### 3.2.6.4 Endangered Species Act

The purpose of the Endangered Species Act is to protect and preserve the species of plants and animals that are threatened or endangered of being eliminated. Section 7 of the Act requires that all federal agencies review their activities and programs including impacts on water quality and to identify those that may impact listed species or their habitats. When an activity or program may affect a listed species or its habitat, the responsible federal agency shall initiate Section 7 consultation with the U.S. Fish & Wildlife Service. The Service has been delegated the responsibility of implementing the Act.

#### 3.2.7 Department of Transportation

The Department of Transportation was created "to assure the coordinated, effective administration of the transportation policies and programs conducive to the provision of fast, safe, efficient and convenient transportation." The Department was established by the Act of October 15, 1966.<sup>16</sup>

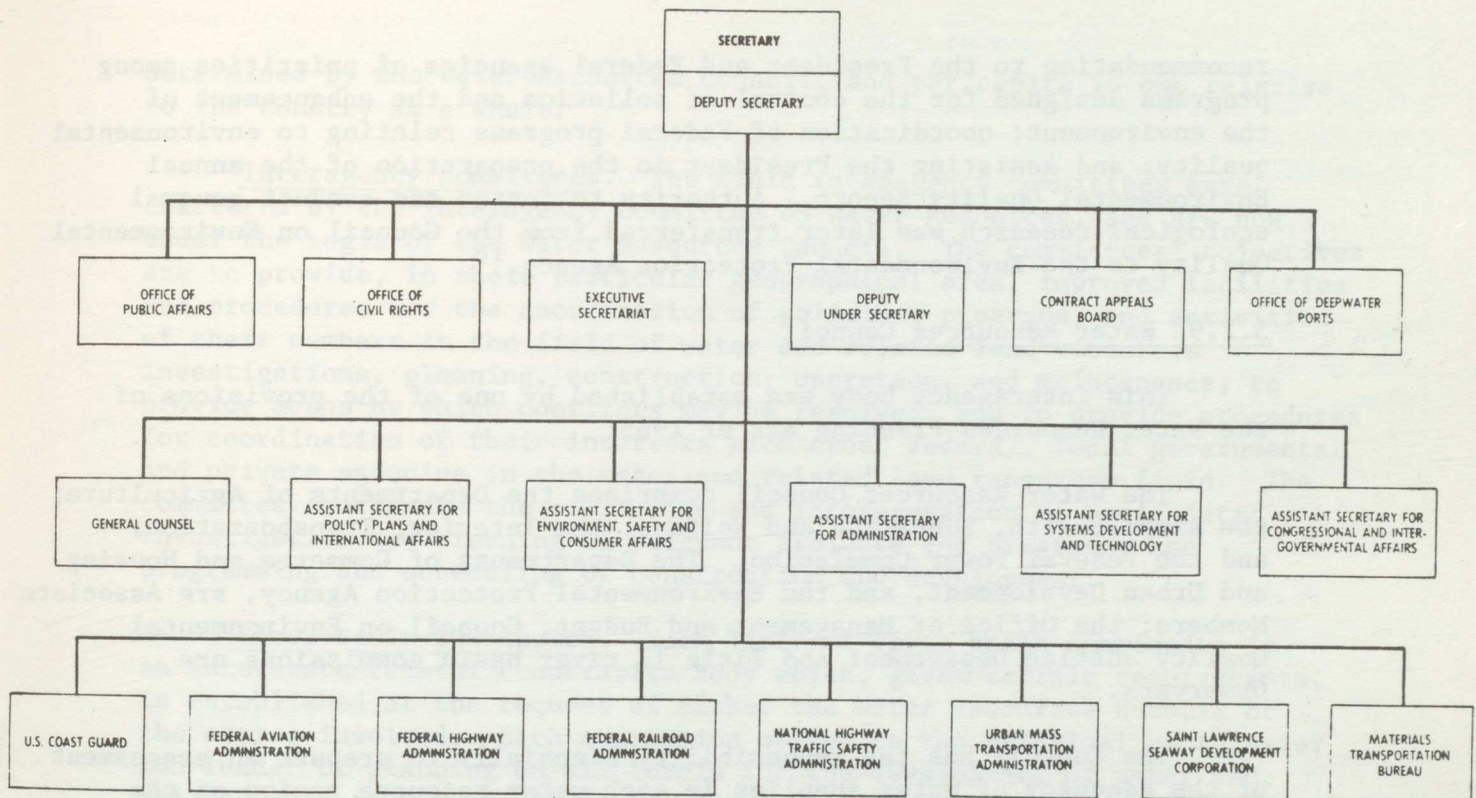
The Department is administered by a Secretary and has 20 operating offices or administrations. The organizational chart is presented in Figure 4.

With regard to nonpoint source pollution, the Department is concerned with controlling erosion and sediment caused by highway construction projects.



FIGURE 4

## DEPARTMENT OF TRANSPORTATION



Under 23 USC as amended the Federal Highway Administration conducts the Federal Aid Highway Program. The program is designed to assist state highway departments in the construction and repair of interstate highways, urban road systems, primary and secondary roads, and bridges. Eligible grantees are the state highway departments.

Special emphasis has been placed on safety design of new highways, correcting highway hazards on existing roads, etc. The Federal Highway Administration has established regulations to which states must adhere on erosion and sediment control for highway construction projects.

### 3.2.8 Council on Environmental Quality

This advisory body was created by the National Environmental Policy Act of 1969 to formulate and recommend national policies to promote the improvement of the quality of the environment. The Office of Environmental Quality which provides staff for the Council, was subsequently established by the Environmental Quality Improvement Act of 1970. The Council consists of three members appointed by the President. The Council is located within the Executive Office of the President.<sup>17</sup>

Pursuant to Section 3 of Executive Order 11514, the responsibilities of the Council include an ongoing review of Federal pollution control policies and procedures, and evaluation of the need for new policies and programs dealing with inadequately resolved environmental problems;



recommendation to the President and Federal agencies of priorities among programs designed for the control of pollution and the enhancement of the environment; coordination of Federal programs relating to environmental quality; and assisting the President in the preparation of the annual Environmental Quality Report. Authority to foster and conduct general ecological research was later transferred from the Council on Environmental Quality to the Environmental Protection Agency.<sup>18</sup>

### 3.2.9 Water Resources Council

This interagency body was established by one of the provisions of the Water Resources Planning Act of 1965.

The Water Resources Council comprises the Departments of Agriculture; the Army; Health, Education and Welfare; the Interior; Transportation; and the Federal Power Commission. The Departments of Commerce and Housing and Urban Development, and the Environmental Protection Agency, are Associate Members; the Office of Management and Budget, Council on Environmental Quality Justice Department and Title II river basin commissions are Observers.

The Council has the responsibility biennially to prepare an assessment of the adequacy of water supplies in each water resource region of the United States, and of the national interest therein; to maintain a continuous study of the relation of regional or river basin plans and programs to the requirements of larger areas of the nation; and to appraise the adequacy of administrative and statutory means for coordination and implementation of the water and related land resources policies and programs of the several Federal agencies, and make recommendations to the President with respect to these policies and programs.

The Council must determine, after appropriate consultation and with the approval of the President, principles, standards, and procedures for Federal participation in the preparation of comprehensive regional or river basin plans, and the formulation and evaluation of Federal water and related land resources projects; it must also coordinate schedules, budgets, and programs of Federal agencies in comprehensive interagency regional or river basin planning.

The Water Resources Council carries out responsibilities regarding creations, operation, and termination of Federal-interstate river basin commissions, receiving plans from them and transmitting these, with its own recommendations, to the President.

The Council also administers a program of grants to the states, under Title III of the Water Resources Planning Act, to aid in financing state preparation of water and related land resources plans, participation in Federal-state comprehensive water and related land resources planning, and training of personnel as needed to develop additional planning capability. The size of the grant is based, in a complicated way, on a given state's population, land area relative to the country as a whole, need as



determined by the Water Resources Council, and per capita income relative to the country as a whole.

Interagency Committees. The field interagency committees were chartered by the Interagency Committee on Water Resources, and are now under the aegis of the Water Resources Council. The committees' objectives are to provide, in their particular geographical area, improved facilities and procedures for the coordination of policies, programs, and activities of their members in the field of water and related land resources investigations, planning, construction, operation, and maintenance; to provide means by which conflicts may be resolved; and to provide procedures for coordination of their interests with other Federal, local governmental and private agencies in the water and related land resources field. The committee coordinate the collection and interpretation of basic data; investigation and planning of relevant projects and programs; and programming and scheduling of construction and development.

River Basin Commission. Each Title II river basin commission is an interstate-Federal cooperative body which, given certain requirements, is established at the request of either the Water Resources Council or the states involved. Each commission serves as the principal coordinator and leader of planning on all levels for the development of water and related land resources within its domain (which may be a group of related river basins, a single complete basin, or a subbasin area). It must prepare and maintain a comprehensive, coordinated, joint plan for Federal, interstate, state, local, and nongovernmental development of water and related land resources; recommend long-range schedules of priorities for data collection and analysis and for investigation, planning, and construction of projects; and conduct such studies of water and related land resources problems as the comprehensive plan necessitates. The plan, revised as needed, must be submitted to the Council, along with appropriate suggestions for its further revision and implementation. However, although the Title II Commission's powers of planning and coordination leadership extend to every aspect of water and related resource use within its<sup>19</sup> region, it has no authority to regulate, acquire, or operate facilities.

#### 3.2.9.1 The Water Resources Planning Act

The Water Resources Planning Act, a major statement of policy, declares that, in order to meet the rapidly expanding demands for water throughout the nation, it is the policy of the Congress to encourage the conservation, development, and utilization of water and related land resources of the United States on a comprehensive and coordinated basis by the Federal government, states, localities, and private enterprise, with the cooperation of all affected Federal agencies, states, local governments, individuals, corporations, business enterprises, and others concerned.



Title II of this legislation authorized, through the Council, the establishment of river basin commissions, and Title III provided for financial assistance to the states to increase state participation in coordinated planning for the nation's water and related land resources. Title III is also administered by the Water Resources Council.

### 3.3 LEGISLATIVE FRAMEWORK

This section will outline the legislative framework of Federal laws pertaining to water quality and will discuss how these laws are implemented by the responsible agencies. The framework is presented in summary form in Table II, "Summary of Legislative Framework." An evaluation of the implementation process is presented in Table III, entitled "Summary of Analysis." Each table is accompanied by a page of notes identifying different symbols that are used in the table and any specific clarifying comments.

Due to the great importance of the Section 208 Water Quality Management Plans that are required of local and state governments by the Federal Water Pollution Control Act, the authority, its nonpoint source requirements -- including identification of the land use activities it will effect -- are presented first. The remainder of this section presents other Federal authorities organized by the land use activities they effect.

#### 3.3.1 Water Quality Management Planning

##### 3.3.1.1 Current Activity

In recognition of the evidence that existing programs and practices have led to variations in practice from state to state, and have led to independent local actions that have not necessarily added together to produce a measurable improvement in the quality of water, the Act lays down firm requirements for the planning of programs on an areawide basis, for melding together of these plans among areas, and for control programs tied directly to the plans. The Act also requires the EPA to provide guidelines for both the planning and management operations, to ensure that the various local agencies live up to these guidelines, to provide financial support to these agencies, to supplement state and local funds, and to assume responsibility itself in those states and areas that do not meet its guidelines.

The implementation of the Act and the guidelines fall into two phases: (1) plan development, and (2) plan implementation. Plan development requires an areawide planning agency or a state agency to develop a plan that is implementable, locally acceptable, certified by the governor and approved by EPA. Once the approvals have been achieved, the management agency or agencies designated in the plan must implement the various components of the plan. Currently, the plan development phase is still in progress with several agencies having received final approvals or are in the approval process. All plans must be completed by November, 1978.



TABLE II  
SUMMARY OF LEGISLATION

CHAPTER	LAND USE CATEGORY									Regulations	IMPLEMENTING RESPONSIBILITY				TYPE OF CONTROL						COMMENTS/ IMPLEMENTING/AGENCY
	Urban	Agriculture	Liquid/Solid Waste	Transportation	Shoreline Landfill	Extractive Operations	Recreation	Lakes & Riverbanks	Forest		Federal	State	Municipality/County	Special District	Direct (PC)	Planning (P)	Indirect (OS)	Non-Statutory (NS)	Management (MP)	Fiscal (F)	
Federal Water Pollution Control Act Amendments P.L. 92-599	X	X	X	X	X	X	X		X	Yes	X	X	X	X	X			X			
Resource Conservation and Resource Act P.L. 89-272 as amended			X							Yes	X	X	X		X	X					
Federal Insecticide, Fungicide & Rodenticide Act P.L.92-516 as amended		X					X	X		Yes	X	X	X		X						
Soil Conservation Act P.L. 74-46 as amended	X	X		X			X	X	X	NA	X			X		X	X				
Water Bank Act P.L. 91-559		X								NA	X				X						
Food and Agriculture Act P.L. 87-703		X					X			NA	X		X						X		
Chapter 2, National Forests									X	Yes	X						X		X		
Consolidated Farm and Rural Development Act	X	X	X				X	X	X	NA	X						X			X	
Watershed Protection and Flood Prevention Act		X								Yes	X	X	X	X		X	X			X	
Soil Conservation and Domestic Allotment		X						X	X	Yes	X						X			X	
Flood Control Act	X	X						X		Yes	X				X	X		X		X	
Housing and Community Development Act	X		X	X						Yes	X		X			X	X			X	
Public Works and Economic Development Act	X									Yes	X		X							X	
Coastal Zone Management	X	X	X	X	X	X	X	X	X	Yes	X	X	X		X	X	X			X	
Land and Water Conservation Funds Act							X	X	X	Yes	X	X				X				X	
Public Lands--Grazing		X				X	X		X	Yes	X								X		
Water Resources Planning Act	X	X	X	X	X	X	X	X	X	Yes	X	X				X				X	
Act of March 3, 1879						X				NA	X							X			
Flood Disaster Protection Act	X									Yes	X		X			X	X				
Forest, Service and Management			X	X		X	X	X	X	Yes	X							X			
Safe Drinking Water Act, Part C			X							Yes	X	X			X	X					



NOTES FOR TABLE II

1. Land Use Categories - See Chapter 2, Section 2, for definitions and identification of the land use activities in each category.
2. Regulations Adopted - Have regulations been adopted to implement the legislation. Symbols refer to:
  - Yes - Regulations have been adopted
  - No - Regulations have not been adopted
  - NA - Information not available or in case of Non-Statutory Control not applicable.
3. Implementing Responsibility - The key agencies and/or levels of government that have responsibilities in implementing the legislation. Specific agencies, municipalities and/or special districts are identified in the comments section.
4. Type of Control - See Chapter 2, Section 3, for definitions of each type of control.



LAND USE ACTIVITY	Current Activity <sup>1</sup>	Staffing <sup>2</sup>	Technical Assistance Funding <sup>3</sup>	Grant Funding <sup>4</sup>	Likely Future Activity <sup>5</sup>	COMMENTS
Urban						
Site Runoff	TR	NA	--	O	EP	Section 208 of P.L. 92-500 requires state/local action
Stormwater Runoff	TR	NA	--	O	EP	Section 208 of P.L. 92-500 requires state/local action
Agriculture	EP					
Pesticides	TR	--	--	NA	EP	
Fertilizers	IP	NA	NA	NA	NO	Extension Service provides education and advice on fertilizer use
Feedlot Operations	TR	NA	--	O	EP	Section 208 of P.L. 92-500 requires state/local program development
Erosion from Farm Practices	IP TR	--	--	--	EP	Section 208 of P.L. 92-500 requires state/local program development
Drainage	IP TR	--	--	--	EP	Section 208 of P.L. 92-500 requires state/local program development
Liquid, Solid, Deepwell Disposal	EP	NI	NI	NI	EP	
Solid Waste	IP					
Liquid Sewage Sludge	EP	NI	NI	NI	EP	
Private Sewage Disposal	TR	NA	--	NA	EP	Section 208 of P.L. 92-500 requires state/local program development
Transportation Corridors						
Highway and Road Runoff	EP	NI	NI	NI	EP	EIS may be required
Railroad Runoff	NO	NA	NA	NA	NO	EIS may be required
Airport Runoff	NO	NA	NA	NA	NO	EIS may be required
Utility Rights-of-Way Runoff	NO	NA	NA	NA	NO	EIS may be required
Shoreline Landfilling						
Land or Construction Excavation	EP	--	--	NA	EP	
Dredging	EP	--	--	NA	EP	
Extractive Operations						
Pits and Quarries	NO	NA	NA	NA	NO	
Mining	EP	NI	NI	NI	EP	
Brines from Oil and Gas	NO	NA	NA	NA	NO	
Recreation						
Runoff from Specific Activities	IP	NI	NI	NI	NI	
Pesticide Use	EP TR	--	--	NA	EP	
Private Sewage Disposal	TR	NA	--	NA	EP	Section 208 of P.L. 92-500 requires state/local program development
Lakeshore and Riverbank Erosion	IP					
Erosion	EP	NI	NI	NI	IP	State implementation under Coastal Zone Management Program
Forest						
Timber Production	EP	NI	NI	NI	NI	
Woodland Grazing	EP	NI	NI	NI	NI	
Wildlife Management	EP	NI	NI	NI	NI	
Recreation	EP	NI	NI	NI	NI	



NOTES FOR TABLE III

1. Current Activity -- The land use activities where current activities are focused primarily at the State or local level. Activities of major emphasis are noted with asterisks (\*). The types of activity are:
  - L -- development of new or improvements to legislation
  - R -- development of or improvements to the regulations
  - IP -- implementation of incentive programs
  - EP -- enforcement of control programs
  - TR -- continuing research is needed to determine the type of controls needed in specific locations
  - NO -- no action
  - NA -- not applicable
  - NI -- information not available.
2. Staffing -- The adequacy of staff assigned to the implementation of legislation addressing the land use activity. Symbols refer to:
  - + -- too many staff resources applied
  - 0 -- an adequate amount of staff resources applied
  - -- an inadequate amount of staff resources applied
  - NA -- not applicable
  - NI -- information not available.
3. Technical Assistance Funding -- The adequacy of the financing to provide staff or other technical assistance to implement the programs affecting the land use activity. Symbols refer to:
  - + -- too much financial assistance
  - 0 -- adequate financial assistance
  - -- inadequate financial assistance
  - NA -- not applicable
  - NI -- information not available.



4. Grant Funding -- The adequacy of the funding of grants to states, local units of government and/or individuals as authorized for programs affecting the land use activity. Symbols refer to:

+ -- too much funding

0 -- adequate funding

- -- inadequate funding

NA -- not applicable

NI -- information not available.

5. Likely Future Activity -- The land use activities where there is likely to be future activity primarily at the state level. The types of activity are:

L -- development of new or improvements to legislation

R -- development of or improvements to the regulations

IP -- implementation of new or improved incentive programs

EP -- enforcement of new or improvement of control programs

NO -- no action

NA -- not applicable

NI -- information not available.



This discussion will focus on the plan development phase, since no significant implementation has taken place which allows for evaluation.

The Act required the following from the planning process:

1. The plan must be applicable to all wastes generated within the area;
2. There must be alternatives for waste treatment management;
3. Treatment works necessary to handle present and anticipated municipal and industrial wastes over the next 20 years must be identified, along with associated needs for land, wastewater collection systems, stormwater runoff systems, and financing arrangements.
4. Priorities for construction of the treatment works identified above must be established;
5. A regulatory program must be developed that can regulate the location, modification, and construction of any facility which may have discharges, assure that any industrial or commercial wastes discharged into treatment works meet applicable pretreatment requirements, and assure that required technology is applied to effluent streams prior to any discharges directly into waterways;
6. The agencies that will build, operate, and maintain all waste treatment facilities must be identified, as must the agencies that will carry out the regulatory functions;
7. The measures necessary to carry out the plan including financing, the timing, the costs, and the economic, social, and environmental impacts of carrying out the plan are to be laid out;
8. The procedures by which nonpoint pollution sources such as runoff from agricultural, silvicultural, mine-related, and construction-related activities are to be identified and control methods are to be developed and implemented;
9. A procedure to identify problems of salt water intrusion and to develop methods to handle them are to be specified;
10. Procedures to control the disposition of all residual wastes which could affect water quality, including disposal in land-fill or underground, are to be developed.<sup>21</sup>

The plan must identify the management agency(ies) capable of carrying out the plans to prevent, reduce, or eliminate water pollution. As in the case of the planning function, it is to be handled through local, area and state agencies related wherever possible to the planning areas. Thus, the governor, in consultation with the planning agencies, will designate the management agencies for each area.



EPA is to accept the agencies designated by the governors unless, within four months, it finds that the designated management agencies do not have adequate authority to carry out their functions.

The management agencies, which may be either existing or newly created entities, must be able to:

1. 208(c)2C -- Directly or by contract design and construct new waste treatment works and related facilities;
2. 208(c)2B -- Manage, operate, and maintain the facilities;
3. 208(c)2D -- Accept and utilize grants and other funds for waste treatment management purposes;
4. 208(c)2E -- Generate revenues, including the power to impose user charges on facilities discharging wastes to publicly-owned treatment facilities;
5. 208(c)2F -- Incur short- and long-term indebtedness;
6. 208(c)2I -- Accept for treatment industrial wastes;
7. 208(c)2H -- Refuse to accept wastes which do not comply with provisions of approved plans;
6. 204(b)1 -- Assure that each community participating in an area-wide plan pays its proportionate share of treatment costs.

Any one management agency will not necessarily carry out all management functions involved in waste management. Where the special expertise needed for the activity already exists in several agencies, these several agencies can be designated the appropriate portions of the total job.<sup>22</sup>

To meet the requirements of the planning process the 208 plan must have the following program elements:<sup>23</sup>

- Municipal and Industrial Treatment Works Program
- Residual Waste Management Program;
- Urban Stormwater Management Program;
- Nonpoint Source Management Program;
- Regulatory Programs (including Discharge Permits) to Implement Abatement Measures;
- Management Programs -- Management Agency(s) and Institutional Arrangements to Supervise and Finance Plan Implementation.



TABLE IV

## PLUARG Land Use Activities Studied in 208 Plans

PLUARG Land Use Activity	208 Plan - Program Element
Solid Waste Liquid Sewage Sludge	Residual Waste Management
Urban Stormwater Runoff	Urban Stormwater Management
Pesticides Fertilizers Feedlot Operations Erosion from Farm Practices Drainage Timber Production Woodland Grazing Pits and Quarries Mining Brines from Oil and Gas Construction Site Runoff	Nonpoint Source Management
All	Regulatory Programs
All	Management Program

Table IV compares PLUARG land use activities with 208 Plan elements. Each of the plan elements is described in the remainder of the section.

#### Residual Waste Management

The residual waste management program is aimed primarily at the pollution problems that are caused by the disposal of sludges. Since land disposal is a possibility, the management of the disposal of sludges is closely related to solid waste disposal. As a result, sludge disposal and solid waste disposal regulations are developed in the residual waste management program.<sup>24</sup>

Specifically the residual waste management program should include the following:

- Provisions for utilization or disposal of residual wastes from municipal, industrial and private facilities;
- Identification of all existing and proposed residual waste, land, and subsurface disposal sites;



- Demonstration that the planning process includes an analysis of wasteloads generated from residual waste disposal sites;
- Identification of control measures needed for existing residual waste, land, and subsurface disposal sites;
- Identification of control measures for new residual waste, land and subsurface disposal sites, needed to regulate future increases in wasteloads from such sites;
- For each control measure above, identification of corresponding regulatory program for existing sources and for new sources.

#### Urban Stormwater Management

The urban stormwater management program should identify control systems that will reduce pollution from runoff. This should include the following.<sup>25</sup>

- An analysis of the magnitude of existing and anticipated urban stormwater problems, including those resulting from combined sewer overflows;
- A specification of measures to be undertaken either to better manage existing storm and combined sewer systems and prevent entry of pollutants to such systems, or to provide for storage and treatment of such runoff;
- Specification of performance criteria for new construction of urban stormwater systems, so as to minimize any stormwater problems.

#### Nonpoint Source Management

The nonpoint source management program includes the planning and controls over pollution resulting from agriculture, silviculture, mining, construction, hydrologic modification, and salt water intrusion. EPA policy requires that Best Management Practices (BMP) should be defined for each land use activity and implemented (Refer to SAM 31-See Chapter 5:) The best practice for reducing nonpoint sources in a given area will depend on the particular physical characteristics of the watershed.

While it is not practical to try to establish precise cause and effect relationships between each nonpoint source generating activity and water quality, the degree of control of nonpoint sources should be based on the degree of water quality protection needed in an area.

Finally, definition of best management practices may distinguish between existing nonpoint source problems and potential problems.



Before choosing best management practices for existing urban runoff pollution, the cost and effectiveness of the various options under existing local conditions should be assessed. On the other hand, more generalized assessment could be made of techniques to prevent future urban runoff problems.

The nonpoint source plans should include the following:<sup>26</sup>

- Demonstration that the planning process adequately identifies each of the specific nonpoint source categories in the area in terms of relative magnitude, extent, and occurrence of pollutant loads;
- Demonstration of compatibility between pollutant reduction levels established for any nonpoint source category and basin plans;
- Identification of control measures for each nonpoint source category that are needed to control existing nonpoint sources so as to meet target reduction of pollutants;
- Identification of control measures for each nonpoint source category needed to prevent increase pollution from nonpoint source generating activities;
- Identification of the regulatory program that corresponds with each nonpoint source category for existing and new pollution sources.

In determining nonpoint source control measures needed to meet water quality standards, any land use measures that reduce generation of nonpoint sources of pollution should be accounted for as an element in the nonpoint source subplan.<sup>27</sup>

The plan must review and analyze land use controls and practices, thus the added requirement of using these land use controls as part of the nonpoint source program. The major land use controls and practices that should be considered are:<sup>28</sup>

- Zoning;
- Flood plain zoning and regulations;
- Environmental performance zoning;
- Subdivision regulations;
- Planned unit development regulations;
- Buffer zones;
- Conservation and scenic easements;



- Density bonuses;
- Housing codes;
- Building codes;
- Construction codes;
- Development permits;
- Transferable development rights;
- Hillside development regulations;
- Drainage regulations;
- Grading regulations;
- Soil erosion and sediment control ordinances;
- Solid waste control ordinances;
- Septic tank ordinances;
- Taxation policies;
- Public works policies;
- Public investment policies;
- Land conservation policies.

#### Regulatory Programs

A regulatory program is required and shall be submitted for approval as part of a 208 plan in those cases where the 208 agency, in consultation with the Regional Administrator, has determined that such a program is the most practicable method of assuring that an effective nonpoint source control program is implemented. Such a determination shall be based on economic, technical, social, and environmental factors.<sup>29</sup>

Regulatory programs should be designed to attain the 1983 water quality goals set forth in Section 101(a) of the Act. They are defined as programs which are enforceable and are administered by agencies with adequate legal authority and resources to ensure their implementation.<sup>30</sup>

Regulatory programs are not required where the plan prepared under Section 208 certifies that substantial water quality problems, resulting from nonpoint sources do not exist or are not likely to develop in the foreseeable future.<sup>31</sup>



There is a great deal of flexibility as to the particular regulatory program which is most appropriate to control a particular nonpoint source. The program may address a particular category of activity, such as construction or mining; a particular pollutant, such as sediment; or particular geographical areas which are determined to be sensitive or critical. Choice of a regulatory program and the appropriate level of government (State, local or regional) to administer the program will depend on the type of extent of the nonpoint source problem, legal authorities, existing programs and existing intergovernmental relationships. However, where necessary to ensure an effective program, new relationships should be developed.<sup>32</sup>

The type of control tools to be utilized, such as permits, licenses, contracts, notification, bonding, leases, plans, and various management techniques, will depend upon the intensity, scope and type of nonpoint source problem to be controlled, land ownership patterns, and such physical topography.<sup>33</sup> An approvable regulatory program must include the following:

- (a) Authority to control the problem which the program addresses (i.e., an activity, pollutant, or geographical area).
- (b) Authority to require the application of Best Management Practices and their periodic revision.
- (c) Monitoring and/or inspection authority.
- (d) Authority to implement the chosen control tool(s) (i.e., permits, licenses, contracts, etc.)
- (e) Enforcement authority.
- (f) A designated management agency or agencies responsible for implementing the regulatory program with:

40 CFR 131.11(o)<sup>34</sup>

- expertise in the subject matter area to be controlled
- adequate staff
- adequate funding
- the relevant authorities pursuant to Section 208(c) (2)

To be approved, a regulatory program must have the necessary implementing regulations in effect and sufficient resources available to carry out the required activities.<sup>35</sup>

#### Management Program

The management program must describe in detail the existing management agencies and institutional arrangements to carry out pollution control. It shall then identify the management agencies and institutional arrangement which meets the requirements of the Act. To accomplish this, many issues will have to be resolved. The basic issues are:<sup>36</sup>

1. What agency will exercise responsibility for overall program supervision and enforcement?



2. To what extent will the affected state be involved in the areawide institutional arrangements?
3. Will implementation responsibility be vested in a single agency or diverse agencies?
4. If consolidation of responsibilities is undertaken, will it be accomplished through unification or intergovernmental contracts and agreements?
5. What measures will be taken to assure that local land use decisions do not adversely affect water quality?
6. To what degree will the state delegate some of its regulatory or supervisory authority to substate entities and general purpose local governments?
7. To what degree will agencies be supported from tax revenue?
8. How much financial assistance can be expected from the state for construction, operation and other functions?

#### 3.3.1.2 Evaluation

The comprehensiveness of the 208 program makes its implementation critical to the control of nonpoint pollutants in the Great Lakes Basin. The development of plans is scheduled for completion in 1978 with implementation to follow. EPA is not anticipating providing funding for the implementation of the plans with the exception of cost-share assistance to farmers. This will be handled by the Soil Conservation Service.<sup>37</sup> More specifically, the Secretary of Agriculture, with the concurrence of the Administrator, Environmental Protection Agency, and acting through the Soil Conservation Service and such other agencies of the Department of Agriculture as the Secretary may designate is authorized to establish and administer a program (agricultural cost share programs) to enter into contracts of not less than five years nor more than ten years with owners and operators having control of rural land for the purpose of installing and maintaining measures incorporating best management practices to control nonpoint source pollution for improved water quality. . . P.L. 950217 authorizes \$200 million for fiscal year 1979 and \$400 million for fiscal year 1980 to be appropriated for carrying out the program.

EPA authority to ensure that the management plans are carried out rests in its control over the permit system for point source discharges and the construction grants program which provides up to 75% of the funds for the construction of local wastewater treatment and collection systems. EPA administers the program at the regional level and is currently understaffed and some staff lacks the necessary experience to adequately implement the program.<sup>38</sup>



### 3.3.2 Urban Areas

#### 3.3.2.1 Construction Site Runoff

The only direct federal control of involvement in construction site runoff is the 208 Program which was described in Section 3.3.1. In addition, the Soil Conservation Service, working through Soil Conservation Districts, provides technical assistance, determination of soil types, and advice on the kinds of uses and erosion characteristics of different types of soils, vegetation reestablishment assistance, and assistance to localities in the development of local standards for construction which will reduce sediment. The SCS will provide this assistance when requested by the locality.

The HUD 701 Planning Program has provided funds for a number of years to regional planning agencies for the development of comprehensive and specified land use plans. In the development of these plans, the local planners can address soil problems and develop plans that will limit or prohibit development in areas where a high degree of erosion is likely to take place.

The Federal Flood Control Act requires that flood control plans, developed jointly by federal and local officials, place restrictions on any stream that receives flood control assistance. These restrictions include the restriction of building, and therefore an indirect control on the sedimentation from construction in flood plain areas.

#### Evaluation

While the federal government has no direct controls over sedimentation runoff from construction activities, the Section 208 Water Quality Plans will insure that local and state governments that need such controls will develop them. This will also require that the controls that are developed will include water quality considerations, which is not true of the plans developed under the requirements of the Flood Control Act. The Federal Government does not anticipate providing additional funding to local programs to insure implementation of the water quality plans. Thus adequate enforcement of the controls currently being developed by all localities will be more the function of local commitment rather than federal enforcement.<sup>39</sup>

#### 3.3.2.2 Urban Stormwater Runoff

##### Current Activities

As described in the section of federally mandated water quality planning, the control of urban stormwater runoff and the related problem of combined sewer overflows is a required element of the water quality management plans.

In addition, the Federal Flood Control Act requires that state and local governments enact and enforce laws that restrict land uses in areas that will cause additional flooding. The Flood Control Act also provides



financial and technical assistance to the states and localities who enact these laws to assist in their implementation.

The HUD Community Development Block Grant Program provides monies to localities that can be used for the construction of stormwater facilities and to help implement comprehensive plans, which can be developed under Federal 701 Planning Assistance Funds, which will reduce the amount of runoff from urban areas. The Local Public Works Assistance Act administered through the Economic Development Administration of the Department of Commerce provides funds for the construction of stormwater facilities in localities.

The Coastal Zone Management Program requires that land use controls be developed for coastal areas and that these controls include limitations on development with one of the criteria being a reduction in stormwater runoff.

The Water Resources Planning Act of 1965 required the development and implementation of principles and standards for planning for the use of water, including the control of stormwater runoff. The Planning Act is the major act for the creation of the Water Resources Council and the Riverbasin Commissions, which provide planning assistance and funds to the states for the development of these water resource plans.

#### Evaluation

The primary involvement of the Federal Government in controlling stormwater runoff is again through the 208 Water Quality Planning Program described earlier. The remaining federal programs provide different types of technical and financial assistance to state and local governments to implement controls and structural development programs to control stormwater runoff. Only the Coastal Zone Management Program takes a comprehensive look of requiring development controls for the specified geographical coastal areas. Funding for the Coastal Zone Program includes making funds available to state and local governments for the implementation of their control programs. Thus, as this program is implemented in the next few years, the possibility exists that adequate funding will be available to insure that stormwater runoff is controlled in the coastal areas.

The remaining federal programs, while they will have an indirect impact on stormwater runoff, do not directly control it, and are primarily focused at the collection and treatment of stormwater rather than the reduction of stormwater runoff in the first place.

The implementation of the Water Resources Planning Act by the Water Resources Council in the Basin has just received a management audit from the U. S. General Accounting Office. In the GAO's opinion, only limited progress has been made in carrying out the purposes of the Water Resources



Planning Act. Specifically, the GAO says, "None of the River Basin Commissions, for example, has completed a comprehensive water plan for its entire region. Although the Council is required to review these plans, it still has not determined how it will conduct the reviews, nor has it reviewed the partial plans it has already received." The Water Resources Planning Act does provide for the Federal Government to be involved in the development of plans which can control or reduce stormwater runoff from urban areas through the development of model ordinances and planning standards which can be followed at the local level to insure that stormwater runoff is reduced. Therefore, the correction of the problems identified by the GAO in their report would provide great assistance to the planning of land use activities that affect stormwater runoff.<sup>40</sup>

### 3.3.3 Agriculture

#### 3.3.3.1 Pesticides

##### Current Activities

Two federal acts have an impact on the use of pesticides from a water quality standpoint. The Federal Environmental Pesticide Control Act of 1972 controls the uses of pesticides. The Federal Insecticide, Fungicide, and Rodenticide Act is intended to control the manufacture, sale, and transportation of pesticides, rather than their use. The Federal Pesticide Control Act also requires that the EPA test and register every pesticide that is used in the United States. It is unlawful for any pesticide to be used without adequate registration. The EPA is given the power and authority to promulgate rules and regulations to carry out the purposes of the two acts. The acts also require joint federal, state and local cooperation in their implementation. A national monitoring plan must be formulated in cooperation with federal, state and local agencies, and should include soil and water monitoring. The EPA may delegate certain of its enforcement powers to the states, who are also given some enforcement authority. The states may regulate the sale or use of pesticides and devices within their borders, provided that the regulation does not permit sales or uses prohibited under the Pesticide Control Act. A state may also require that pesticides sold in the state meet special local needs as a prerequisite to state registration. The federal labeling requirements apply to all states, and the Acts specifically exclude state action in the area of labeling requirements.<sup>41</sup>

##### Evaluation

In the interviews with state officials, the Contractor found that most states are in the process of complying with the requirements of the Federal Acts, through development of their own laws and regulations. Since most of the water quality impacts of the federal law will be implemented at the state and local level, the degree of success depends on the implementation of the state and local programs. It is important, however, that EPA and other federal agencies provide technical and financial assistance to the states and localities to insure the adequate implementation of their programs.



The EPA is responsible, however, for the registration of all pesticides. Due to the vast number of pesticides, the program of registration is behind schedule, with estimates of many years before EPA has tested and registered all pesticides.

#### 3.3.3.2 Feedlots

##### Current Activities

Feedlots of large operations are required to obtain a permit for any wastewater that is discharged from the operation. Smaller feedlot operations will have controls developed for them as part of the 208 Water Quality Planning Process.

Currently, the only other programs that provide indirect control of feedlot operations are the technical assistance and cost share programs of the Soil Conservation Service and the Agricultural Stabilization and Conservation Service. Both of these programs are aimed at developing plans for individual farms for best management practices, primarily from a farming standpoint, but with environmental considerations; the cost share program then provides funding to individual farmers to assist them in carrying out their plans.

##### Evaluation

The 208 Program should result in controls being developed at the state and local level for runoff from feedlot operations. To insure adequate and timely operation, the cost share programs should be augmented with additional staff and financial assistance to insure that farmers develop appropriate control plans upon which cost share grants can be based. One of the problems with the ASCS Cost Sharing Program is that there is a statutory limit of \$2,500 of assistance per farm. Given the relatively high costs of livestock waste management systems, this level of assistance could prove to be inadequate to insure that farmers become voluntary participants in the plans and then implement them.<sup>42</sup>

#### 3.3.3.3 Fertilizers

##### Current Activities and Evaluation

The Extension Agents in each state have the responsibility for advising farmers on fertilizer use. They are supported by the Department of Agriculture through technical and research assistance programs.<sup>43</sup>

#### 3.3.3.4 Erosion from Farm Practices

##### Current Activities and Evaluation

The control of erosion from agricultural practices is one of the requirements that must be included in all of the 208 Plans. There are two major programs which provide assistance to farmers to help control erosion from farm activities. They are the Agricultural Cost Sharing Program of the



Soil Conservation Service and the Agricultural Conservation Program of the Agricultural Stabilization and Conservation Service.

The Department of Agriculture acting through the Soil Conservation Service is authorized to establish the Agricultural Cost Sharing Program. Under the Program the SCS may enter into contracts of not less than five years nor more than ten years with owners and operators having control of rural land for the purpose of installing and maintaining measures incorporating best management practices to control nonpoint source pollution for improved water quality.

The Secretary shall enter into agreements with soil conservation districts, state soil and water conservation agencies or state water quality agencies to administer the program.

The Soil Conservation and Domestic Allotment Act is a piece of legislation under which Agriculture Stabilization and the Conservation Service through the direction of the Department of Agriculture utilizes cost sharing as a method to accomplish soil and water conservation. The Act establishes the Agricultural Conservation Program. The stated purpose of this program is to prevent or abate agriculture-related pollution of water, land and air for community benefit and the general public good.

ASCS shares the costs with farmers, ranchers, and woodland owners (agriculture-producers) of installing approved soil and water conserving pollution-abatement and related wildlife-conserving practices in accordance with specified technical standards. These are practices which farmers generally would not perform to the needed extent with their own resources. The rate of cost-sharing averages between 50-75 percent of the cost. Cost-sharing may be in the form of a purchase order to a vendor for goods and services or a direct payment to the producer upon completion of the practice. ASCS administers the program through the State and county Agricultural Stabilization and Conservation committees. This other technical and financial assistance program is aimed at soil conservation. The water quality aspects are secondary.

#### 3.3.3.5 Drainage

##### Current Activities and Evaluation

In the area of subsurface drainage of agricultural land, the Soil Conservation and Domestic Allotment Act establishes the Agricultural Conservation Program. This program provides cost share funds to individuals to improve conservation practices, which include drainage. As stated before (Section 3.2.2.1), farmers who are approved to participate receive up to 75 percent of the cost of establishing the conservation practices on their land with an annual maximum of \$2,500. Since drainage works can cost considerably more than this, the cost share feature is not an incentive to large farms.<sup>44</sup>



### 3.3.4 Liquid, Solid and Deepwell Disposal

#### 3.3.4.1 Solid Waste

##### Current Activities and Evaluation

The 208 Plans require the development of a Residual Waste Program. This Program will identify the disposal of solid wastes in an area and the types of controls necessary to insure that there are no environmental impacts from their disposal.

The major act involving the Federal Government in solid waste disposal is the Resource Conservation and Recovery Act, which requires the EPA to develop guidelines for states to implement a program for hazardous waste disposal and state solid waste management planning. The Act provides grant funds to the states to assist with the planning and to implement the program. The states are also required to develop a permit program which permits the use of specific sites and methods for the disposal of solid and hazardous wastes. Rural communities can use the Consolidated Farm and Rural Development Act to provide loans to build solid waste disposal facilities. In addition, the HUD Block Grant Program may be used for the construction of solid waste facilities, while planning for the adequate siting of solid waste facilities in terms of comprehensive planning can be funded through the HUD Section 701 Comprehensive Planning Program. The implementation of the Resource Conservation and Recovery Act is relatively recent, and not all states are currently in full compliance. In its interviews with state officials, the Contractor identified that all states are in the process of complying with this Act through the development of plans and permit programs.

#### 3.3.4.2 Liquid Sewage Sludge Disposal

##### Current Activities and Evaluation

The 208 Program requires that adequate disposal of sewage sludges from treatment plants to be included in the management plan and implemented through the plan. In addition, the 201 Construction Grants Program requires that the facilities plan which is developed for each specific facility must identify how the sludges will be disposed of and where. With the implementation of these two programs, the disposal of liquid sewage sludge should be adequately controlled.

#### 3.3.4.3 Private Sewage Disposal

##### Current Activities and Evaluation

The control of private sewage disposal systems has traditionally been one at the local level. Therefore, there has been no federal program designed to control private sewage disposal systems. However, SCS soil survey program provides valuable information.



The 208 Water Quality Management Plan and the 201 Facilities Planning Program will require local jurisdictions to come up with areawide management plans for the control of nonpoint pollution coming from private sewage systems; and with regard to Facilities Plan, areas should be identified where septic systems will be allowed and where they will not be allowed with guarantees that federal funding will be provided for the construction of community-wide collection and treatment facilities that growth will be controlled into the areas identified in the facilities planning process. This program, like the liquid sewage sludge program, should be adequately controlled with implementation of the 208 and 201 Programs.

### 3.3.5 Transportation Corridors

#### Current Activities and Evaluation

The Section 208 Water Quality Management Plans require that construction and maintenance of transportation corridors be controlled in terms of nonpoint source pollution runoff.

The Federal Highway Administration requires that its erosion control practices be incorporated in the planning, design and implementation of any highways which are build using FHWA funds. The Federal Aviation Administration has similar requirements for the construction of airports using federal funding. All highway, airport, pipeline, and utility right-of-way construction projects either through the use of federal funds or the requirement for a federal permit to cross interstate lines fall under requirements of the National Environmental Policy Act, which will require an environmental impact statement to be completed on a project. With the development of the environmental impact statement, there must be mitigating measures developed which will reduce any environmental impacts of the development of a project. This can be an indirect control.

### 3.3.6 Shoreline Landfilling

#### Current Activities and Evaluation

Two federal programs have direct control over activities in the shoreline. The Coastal Zone Management Program is a cooperative program with the states and requires the development of a management program for land and water resources in the coastal zone. Grants are given to the states for a planning program and then to implement the program and for the management of specific environmentally sensitive areas which should be preserved. This program is currently in the third year of the planning program with several areas also having been designated as preservation areas. How effective this program will be in controlling nonpoint pollution sources in the coastal zone is still undeterminable since implementation has not yet begun.

The second program is Section 404 of Water Pollution Control Act Amendments of 1972. This Section requires the Corps of Engineers to issue a permit for dredging activities in all navigable waters of the



United States. This program supplements, and in some cases, duplicates, existing state programs which have been discussed in each of the state reports.

### 3.3.7 Extractive Operations

#### Current Activities and Evaluation

There are not direct federal controls over pit and quarry operations or over brines from oil and gas operations. However, the deepwell disposal program of the state Drinking Water Act, Part C, includes the injection of brines from oil and gas operation if drinking water from underground sources is endangered.

Federal controls do exist over surface mining. More specifically, the Surface Mine Reclamation Act of 1977 establishes a program to regulate surface mining. Regulations were published regarding control of environmental impacts of surface coal mining. The U.S.D.A. is responsible for providing assistance in sediment and eroding controls, soil reconstruction, vegetative establishment and impoundment design. The Act also establishes a program to reclaim abandoned mines.

The 208 Water Quality Management Program requires the development of best management practices for extractive operations. This should include those planning activities which are currently not included under federal law. Implementation of the best management practices will be through a permit system to be enforced through the states where that is practical.

The U.S. Geological Survey also provides topographic and geological information to local governments as it relates to mining operations.

### 3.3.8 Recreation

#### Current Activities and Evaluation

The control of pesticides and private sewage disposal in recreational areas falls into two categories. Pesticides are controlled as described earlier. Private sewage disposal is not controlled at the Federal level for private lands, however, there are management practices to which the Federal National Park Service and the National Forest Service must adhere to in terms of the provision of sewage disposal in recreational areas that they operate.

The Section 208 water quality management plans must address the use of private sewage disposal systems in private recreational areas. These management plans will also develop sediment control plans which will also apply to sedimentation runoff from specific types of recreational activities.

The Federal government has two other programs which affect nonpoint source pollution from recreational activities. These are the Land and Water Conservation Funds Act, which requires permits for specific types of uses in the National Park System and provides grants for states for the planning, acquisition and development of outdoor recreation facilities. For the state to be eligible and to receive a grant, it must complete a comprehensive



state outdoor recreation plan identifying where recreation activities will be pursued and what kind.

The second Federal program is the Resource Conservation and Development Loan Program which provides technical cost share and loan assistance to public agencies and others for public water-based recreation facility development. It requires the development of a plan showing the development of a specific recreational area and that it meets Federal planning standards for grant assurance.

### 3.3.9 Lakeshore and Riverbank Erosion

#### Current Activities and Evaluation

The Federal government has several programs which indirectly control erosion from lakeshores and riverbanks. The Soil and Water Conservation Program administered by the Soil Conservation Service provides assistance to individuals and local units of government for reducing lakeshore or riverbank erosion from different types of activities. The Flood Control Act and the Flood Insurance Program administered through the Corps of Engineers and the Department of Housing and Urban Development require that state and local laws restricting land uses and floodplains be developed. The Flood Control Act provides funds for the construction of facilities to control floods. To receive these funds the jurisdictions must have passed laws restricting land use in floodplains.

To assist in the implementation of flood control projects, the Corps of Engineers maintains prime responsibility and provides educational and technical assistance services to local jurisdictions on how to control and prevent floods.

Through the requirement to develop controls on the types of development to reduce lakeshore erosion in the coastal zone, the Coastal Zone Management Program will have a direct effect through cooperation with the states on the reduction of erosion from lakeshore areas.

The only program that will have a widespread effect on controlling lakeshore erosion is the Coastal Zone Management Program since it is designed to specifically control development. The other programs are designed to control the effects of flooding and erosion on man, and not necessarily to improve water quality.

### 3.3.10 Forests

#### Current Activities and Evaluation

The Forest Service is conducting 208 planning studies on national forest areas. State foresters are distributing information on erosion and sediment control. The Forest Service is also providing state and local units with technical assistance and conducting training programs so that they may be able to conduct 208 activities on their own forested lands.



The National Forest Act controls the use, occupation, and cutting of timber in national forests. The National Forest Service regulates these activities. Regulation is based on the concept of multi-use.

Grazing on Federal lands is also controlled and is based on the concept of the highest use of the land as well as the multiple use concept and water quality is a minimal consideration. To graze livestock on Federal lands, a permit is required which usually runs for 10 years. The permit identifies the locations, the seasons of use, and the land capacity for the grazing to be carried out.

Timber production on Federal lands is controlled through the use of best methods for reforestation, growing, managing and utilizing timber as potential resources. Again, water quality considerations are in the minority.



### CHAPTER 3 -- FOOTNOTES

1. General Services Administration, 1977/1978 United States Government Manual, U.S. Government Printing Office, Washington, D.C., pp. 448-489.
2. Ibid., p. 490.
3. Gerry Welsh, Soil Conservation Service, February 27, 1978.
4. North Atlantic Regional Water Resources Study. Coordinating Committee. North Atlantic Regional Resources Study, Appendix, May, 1972.
5. U.S. Department of Agriculture, Forest Service. RPA A Recommended Renewable Resource Program. Forest Service; U.S.D.A., Washington, D.C. 1977, pgs. 2-3.
6. Interview with Curtis Clark, Corps of Engineers, March 1, 1977.
7. Op. Cit., General Services Administration.
8. Schweitzer, Eric. The Coastal Zone Management Program and the Niagara Frontier, Niagara Frontier Builders Association, Buffalo, New York, August, 1976, p. 2-3.
9. Op. Cit., General Services Administration.
10. Ernst & Ernst, Inc., Summary of Preliminary Drafts: Appendix 6, Institutional System Inventory and Appendix 11, Institutional System/ Water Quality, East Central Michigan Planning and Development Region Bay, City, Michigan.
11. Description provided by officials of the Department of Housing and Urban Development, March 1978,
12. Op. Cit., General Services Administration
13. Ibid.
14. Op. Cit., Ernst & Ernst, Inc.
15. Ibid.
16. Op. Cit., General Services Administration
17. Ibid.
18. Op. Cit., Ernst & Ernst, Inc.
19. Op. Cit., North Atlantic Regional Water Resources Study.



20. Gusher, David E. An Analysis of P.L. 92-500, The Federal Water Pollution Control Act Amendments of 1972, Congressional Research Service, Library of Congress, November 1972, p.i.
21. Ibid.
22. Ibid.
23. Environmental Protection Agency. Guidlines for Areawide Waste Treatment Management Planning, EPA, Washington, D.C. August 1975.
24. Ibid.
25. Ibid.
26. Ibid.
27. Ibid.
28. Environmental Protection Agency, Program Guidance Memorandum. SAM 31 EPA Washington, D.C. (Reference: 40 CFR 131.11 (N) )
29. Ibid.
30. Ibid.
31. Ibid.
32. Ibid.
33. Ibid.
34. Ibid.
35. Ibid.
36. Op. Cit., EPA
37. Interview with Judy Wheeler, Water Quality Planning Environmental Protection Agency, Washington, D.C. August 23, 1977.
38. Ibid.
39. Ibid.
40. U.S. General Accounting Office. Improvements Needed by the Water Resources Council and River Basin Commission to Achieve the Objectives of the Water Resources Planning Act of 1965, U.S. General Accounting Office, October 31, 1977.
41. U.S. Environmental Protection Agency. Compilation of Federal, State and Local Laws Controlling Nonpoint Pollutants, U.S. EPA, Washington, D.C., September 1975.



42. Interview with Gerry Welsh, Soil Conservation Service, Washington, D.C., August 22, 1977.

43. Ibid.

44. Ibid.



## CHAPTER 4

### FRAMEWORK ANALYSIS

#### 4.1 GENERAL

This chapter presents the Contractor's analysis of the legislative framework of Federal laws and programs. It is based on the evaluations of the different land use activities as presented in Chapter 3.

#### 4.2 STRENGTHS, WEAKNESSES AND FUTURE ACTIONS

The role of the Federal agencies is one of development of standards and guidelines with implementation required of state and local agencies. The Federal agencies then provide varying amounts of technical assistance and financial assistance to the state and local governments. This is the approach that is being taken in the 208 Water Quality Management Plans and the point source permit programs of the Water Pollution Control Act, the Federal Insecticide, Fungicide and Rodenticide Act, the Resource Conservation and Recovery Act and the Coastal Zone Management Act.

The second approach is that used by the Soil Conservation Service and other agencies of the Department of Agriculture. This program is voluntary, providing technical assistance and financial assistance to farmers and other land users, many of whom have signed cooperative agreements with the local Soil and Water Conservation Districts.

Both of these approaches seem to work well within the restrictions of authority and funding placed on them. The former approach is rather new, and implementation of controls has not begun in some cases. Thus, the success of the approach remains for additional evaluation over time.

The critical Federal program directly related to nonpoint source water pollution is the 208 Water Quality Management Program. Since this program is still in the development stages at the state and local level it is too early to determine the actual impact it will have on nonpoint pollution. The program has the potential to ensure that uniform controls on all land use activities that cause nonpoint source pollution are developed. The success of implementation depends on many factors, including the financial and technical resources available at all levels of government to ensure compliance with the controls that are developed.

Weaknesses in the Federal programs are in coordination of land management practices between Federally owned land and its surrounding areas. Most Federal land management practices do not always take water quality into consideration when determining the uses of Federal lands.



## CHAPTER 5

### RELEVANT LEGISLATION

#### 5.1 GENERAL

This Chapter presents a summary of the legislative authority related to land use activities that may cause water pollution. Where information was available, the legislation is summarized by Act or popular title with the implementing agency, affected land use activity, purpose, provisions and administrative responsibilities identified. The listing follows:

Coastal Zone Management Act of 1972  
Consolidated Farm and Rural Development Act  
Environmental Pesticide Control Act of 1972  
Flood Act of 1936 as amended  
Flood Control Act of 1960 as amended  
Flood Control Act of 1973 as amended  
Food and Agriculture Act of 1962  
Housing Act of 1954 as amended  
Housing and Community Development Act of 1965 as amended  
Housing and Community Development Act of 1974  
Land and Water Conservation Funds Act of 1965  
National Forests 16 USCA, Relevant Portions, Sections 471-482  
National Forests 16 USCA Relevant Portions of Section 551-583  
Public Lands  
Public Works and Economic Development of 1965 as amended  
Resource Conservation and Recovery Act of 1976 as amended  
Safe Drinking Water Act, Part C  
Soil Surveys  
Surface Mine Reclamation Act  
Water Bank Act  
Water Pollution Control Act Amendments of 1972 as amended by Clean Water Act of 1977  
Water Resources Planning Act  
Watershed Protection and Flood Prevention Act of 1954  
Act of March 3, 1879, USCA 31, 48, 49, and 50  
PL 74-46 as amended by Soil Conservation and Domestic Allotment PL 74-461



POLITICAL JURISDICTION: Federal

Title or Reference: Coastal Zone Management Act of 1972, P.L. 92-358  
as amended by P.L. 94-370, Section 304, 307(3A), 309

Affected Land Use Activities: Stormwater Runoff, Lakeshore & Riverbank Erosion

Purpose:

To establish a national policy and develop a national program for the management, beneficial use, protection, and development of the land and water resources of the nation's coastal zones.

Provisions:

1. Establishes a grants program to assist any coastal state in the development of a management program for the land and water resources of its coastal zone -- includes adjacent shoreland.
2. Establishes a grant program that assists coastal zone states in administering the Coastal Zone Management program approved by the Secretary of Commerce.
3. Establishes a grant program for two or more coastal states to cooperatively develop and administer coastal zone planning, policies and programs pursuant to Sections 304 and 306.
4. Allows the Secretary of the Department of Commerce to terminate any financial assistance if the grantee fails to adhere to the program.
5. Authorizes the Secretary to establish a Coastal Zone Management Advisory Commission to advise the Secretary on policy matters concerning the coastal zone and details the membership requirements.
6. Details the conditions upon which the extension of benefits to states in the management program is dependent.
7. Designates areas to be permanently used for preserving and restoring construction resources.
8. Requires grantees to comply with the requirements of both the Federal Water Pollution Control Act and the Clean Air Act.

Administrative Responsibilities:

The Secretary of the Department of Commerce is responsible for administering the above-mentioned grant programs. The Secretary is also responsible for promulgating rules and regulations regarding the programs.



POLITICAL JURISDICTION: Federal

Title or Reference: Consolidated Farm and Rural Development Act, PL 92-419,  
Section 304, 306m

Implementing Agency: Department of Agriculture, Farmers Home Administration

Affected Land Use Activities: Erosion from Farm Practices, Drainage

Purpose:

To facilitate improvement, protection, and proper use of farmland; improve community facilities; and improve rural waste disposal systems.

Provisions:

1. Establishes the Soil and Water Loan Program. The purpose of the Program is to facilitate improvement, protection, and proper use of farmland by providing adequate financing and supervisory assistance for soil conservation; water development, conservation and use; forestation, drainage of farmland; the establishment and improvement of permanent pasture; and related measures.
2. Authorizes the Secretary of Agriculture, through the Farmers Home Administration (irrigation, drainage, and other soil and water conservation loans), to make loans to eligible applicants for irrigation, drainage, or other soil conservation measures.

The FmHA will make loans either through district administration or in conjunction with local banking systems. All project proposals are reviewed by state and local government jurisdictions before an application is filed. The application is subject to the A-95 review process and an environmental assessment.

3. Authorizes the Secretary of Agriculture, through the Farmers Home Administration, to make loans to construct, enlarge, extend, or otherwise improve community facilities providing essential services to rural residents.

The FmHA will make loans for construction of community facilities that include, but are not limited to, those providing or supporting overall community development such as fire and rescue services, transportation, traffic control, community, social, cultural, health and recreational benefits, industrial and business development. All facilities financed in whole or in part with FmHA funds shall be for public use. The application is subject to the A-95 review process and an environmental assessment.



4. Authorizes the Secretary of Agriculture, through the Farmers Home Administration, to make grants or loans (Water and Waste Disposal Systems for Rural Communities Program) to be used for the installation, repair, improvement, or expansion of a rural water system, including distribution lines, well, pumping facilities and costs related thereto. The installation, repair, improvement, or expansion of a rural waste disposal system including the collection, and treatment of sanitary, storm, and solid wastes.

Administrative Responsibilities:

The Department of Agriculture, Farmers Home Administration, is responsible for administering the above programs. Responsibilities include the review and approval of applicants for grants and/or loans and the adoption of necessary rules and regulations.



POLITICAL JURISDICTION: Federal

Title or Reference: Federal Environmental Pesticide Control Act of 1972 includes Federal Insecticide, Fungicide and Rodenticide Act, 7 USC 135 et.seq.; P.L. 92-516; amended by P.L. 94-51, 1975; amended by P.L. 94-140, 1975

Implementing Agency: Environmental Protection Agency

Affected Land Use Activities: Pesticides

Purpose:

To control the manufacture, sale, and transportation of pesticides.

Provisions:

1. Prohibits any person in any state from distributing, selling or offering for sale, holding for sale, shipping, delivering for shipment, or receiving any pesticide which is not registered by the Administrator of EPA; except in other cases expressly provided for under the Act.
2. Details the procedure for registering a pesticide and the information required to register.
3. Classifies the pesticide either as being for general use, restricted use or both.
4. Provides the Administrator with the authority to change a user classification.
5. Requires certification of applicators of pesticides.
6. Provides states with the authority to certify applicators, if they so desire.
7. Requires state to submit a plan detailing the standards for certification of an applicator, and the state agency who will be responsible for administering the program.
8. Provides Administrator with the authority to cancel the registration of any pesticide at the end of a 5-year period.
9. Details the procedure for change and cancellation in classification.
10. Requires the registration of any establishment producing pesticides to be registered with the Administrator and details the procedures and information required for registration.



11. Authorizes officers or employees designated by the Administrator to enter any establishment or place where pesticides are held for distribution or sale for the purpose of inspection and obtaining samples.
12. Allows the Administrator to establish separate standards for commercial and private applicators.
13. Authorizes the Administrator of any state program to stop the sale of any pesticide or device and seize the remains.
14. Details the penalties to which any registrant, commercial applicator, wholesaler, dealer, retailer, or distributor who violates any provisions of the Act is subject.
15. Establishes procedures and regulations for the disposal or storage of packages and containers of pesticides.
16. Authorizes Administrator of EPA to enter into cooperative agreements with the State in the enforcement of the Act.
17. Authorizes Administrator to enter into agreement for the purposes of encouraging training of applicators.
18. Provides states with the authority to regulate the sale or use of pesticides or devices and to provide registration of pesticides for distribution in the state.

#### Administrative Responsibilities:

The Administrator of EPA is responsible for promulgating rules and regulations with regard to the usage of pesticides of various classifications, classifying pesticides, establishing standards for certifying applicators, and approval of state plans.



POLITICAL JURISDICTION: Federal

Title or Reference: Flood Control Act of 1936 as amended (Supp. 74); 33 USCA 701-701u, 5 USC 5315, 10 USC 3013, 16 USC 460d, 33 USC 416e, 709a, 42 USC 1962-2, d-b, 43 USC 15-11a

Implementing Agency: Department of the Army, Department of Agriculture

Affected Land Use Activities: all categories

Purpose:

To protect watersheds from runoff and water flow retardation and soil erosion.

Provisions:

1. Construction on Federal land is contingent upon receipt of assurances from governmental units that necessary easements and rights-of-way will be provided without cost.
2. Requiring enactment and enforcement of State and local laws restricting land use and otherwise preventing runoff and soil erosion.
3. Requiring agreements as to the permanent use of land.
4. Failure to comply with conditions of the Act may result in a denial of funds.

Administrative Responsibilities:

Department of the Army is responsible for preparation and development of Flood Control Plans. Department of Agriculture is responsible for improvement of watersheds, water flow and soil erosion. Emergency measures for runoff retardation and soil erosion prevention must be taken by the Secretary of Agriculture.



POLITICAL JURISDICTION: Federal

Title or Reference: 33 USC 709a, Flood Control Act of 1960, as amended;  
P.L. 86-645

Implementing Agency: Department of Defense

Affected Land Use Activities: Stormwater Runoff

Purpose:

To promote appropriate recognition of flood hazards in land and water use planning and development through the provision of needed information, technical services, and guidance.

Provisions:

1. Authorizes the Secretary of the Army, through the Chief of Engineers, to compile and disseminate information on floods and flood damages, including identification on areas subject to inundation by floods, criteria on the use of flood plain areas, and advise on how to ameliorate the flood hazard.
2. Provides information and advice only upon request.

Administrative Responsibilities:

The Department of Defense is responsible for the collection and dissemination of information on floods and flood damage.



POLITICAL JURISDICTION: Federal

Title or Reference: Flood Disaster Protection Act of 1973 as amended, by Housing Authorization Act of 1976 (P.L. 94-375), Housing and Community Development Act of 1977 (P.L. 95-128) Code of Federal Regulations Title 24, Chapter X, Subchapter B.

Implementing Agency: Department of Housing and Urban Development.

Affected Land Use Activities: all categories

Purpose:

The program makes federally-subsidized flood insurance available to property owners in communities that establish and enforce minimum flood plain construction standards. Because of the flood insurance and flood plain management, economic losses are reduced and construction is limited in flood-prone areas.

Provisions:

2 USC 4001 - et. seq.

1. Authorizes the Secretary of the Department of Housing and Urban Development to establish and carry out a national flood insurance program.
2. Makes flood insurance available in only those states or areas that have given satisfactory assurances that land use controls and measures have been adopted which are consistent with the comprehensive criteria for land management and that the application and enforcement of such measures will continue as soon as technical information is available.
3. Makes flood insurance available to cover residential properties, church properties, and business properties.
4. Requires the Secretary to make studies and investigations with regard to the risk premium rates for flood insurance and prescribe by regulation chargeable premium rates, and the terms and conditions under which they apply.
5. Requires Secretary to identify and publish information with regard to flood plain and coastal areas, and establish flood-risk zones.
6. Requires the Secretary to develop criteria with aid to state and local areas in adopting measures that will guide development, reduce drainage caused by floods, constrict the development of land exposed to flood damage and improve long-range management and use of flood-prone areas.



7. Directs the Secretary of HUD, in cooperation with other agencies, to give the highest priority in identifying and mapping of flood hazard areas and flood risk zones.

Code of Federal Regulations, Title 24, Chapter X, Subchapter 8

8. Details the eligibility requirements for participating in flood insurance program.
9. Prohibits the sale or renewal of flood plain insurance within a community, unless adequate land use and control measures consistent with federal criteria have been adopted.
10. Details the criteria for land management and use -- i.e.,
  - a. Requires that communities in flood-prone areas review building permits for all proposed construction or other improvements, all building permit applications, subdivision proposals, and new development; and requires new or replacement of existing water supply systems and/or sanitary sewage systems to comply with flood plain management requirements.
  - b. Requires permits for any excavation, filling grading, or construction in mudslide-prone areas and requires that these permits be reviewed.

Administrative Responsibilities:

Department of Housing and Urban Development, Federal Insurance Administration is responsible for administering the provisions of the Act.



POLITICAL JURISDICTION: Federal

Title or Reference: Food and Agriculture Act of 1962; Public Law 87-703,  
1011 (Supp. V) 1959-1963, 7 USC 1010

Implementing Agency: Department of Agriculture, Farmers Home Administration,  
SCS

Affected Land Use Activities: all categories

Purpose:

To correct maladjustments in land use, and assist in controlling soil erosion, reforestation, preserving natural resources, protecting fish and wildlife, mitigating floods, preventing impairment of dams and reservoirs, and protecting the watersheds of navigable streams.

Provisions:

1. Investigation and surveys to help develop programs and plans of land conservation and utilization, technical services and financial assistance to sponsors, local groups, and individuals.
2. Making loans for resource improvements and developments in approved projects.

Administrative Responsibilities:

The Department of Agriculture is responsible for administering the above program.



POLITICAL JURISDICTION: Federal

Title or Reference: Section 701, Housing Act of 1954 as amended, P.L. 83-560, and P.L. 93-383, Housing and Community Development Act of 1977 (P.L. 95-128)

Implementing Agency: Department of Housing and Urban Development

Affected Land Use Activities: Residential, commercial, and industrial site runoff.

Purpose:

To assist states and local governments in solving planning problems; to facilitate development of resources and planning services in urban and rural areas; to facilitate comprehensive planning for urban and rural development on a continuing basis by governments.

Provisions:

1. Authorizes the Secretary of Housing and Urban Development to make grants to states, cities, counties, area-wide organizations, etc.
2. Activities eligible for assistance include those necessary to develop and carry out a comprehensive plan as part of an ongoing planning process; to improve management capabilities to implement a plan; and to develop a policy planning evaluation capacity.
3. Details the elements that should be included in the plan.
4. Permits the Secretary to make and guarantee loans for preparation and development of plans, policies, and strategies for capital investments, government services and implementation of measures.

Administrative Responsibilities:

The Department of Housing and Urban Development is responsible for administering the 701 program.



POLITICAL JURISDICTION: Federal

Title or Reference: Title I of the House and Community Development Act of 1974, P.L. 93-383 as amended by the Housing and Community Development Act of 1977, Title I.

Implementing Agency: U.S. Department of Housing and Urban Development, Community Planning and Development

Affected Land Use Activities: Residential, commercial and industrial runoff

Purpose:

To aid in developing viable urban communities including decent housing and a suitable living environment and expanding economic opportunities principally for persons of low and moderate income.

Provisions:

1. Authorizes the Secretary of Housing and Urban Development to make grants to states and units of local government to help finance the Community Development Program.
2. Requires applicants to the grant program to submit a summary of a 3-year community plan which identifies the community's development and housing needs, and demonstrates a comprehensive strategy of meeting those needs.
3. Specifies the activities eligible for assistance under this program. They include land acquisition, rehabilitation, and restoration and the provision of public works, facilities and improvements.
4. Allows the Secretary to terminate, reduce or limit payments to grant recipients under this program if the Secretary finds that a recipient has failed to comply with the provisions under Title I.

Administrative Responsibilities:

The Department of Housing and Urban Development is responsible for administering the program. Local units of government who receive grants are metropolitan cities, urban counties which are entitled to funds. Discretionary funds are available to small cities, neighborhood-based, non-profit organizations, local development corporations or Small Business Investment Companies.



POLITICAL JURISDICTION: Federal

Title or Reference: Land and Water Conservation Funds Act of 1965,  
16 USC 4601-10; P.L. 90-401

Implementing Agency: Department of Interior

Affected Land Use Activities: Recreation, specific activities

Purpose:

To create a land and water conservation fund to assist states in planning, acquisition and development of needed land and facilities for recreation projects.

Provisions:

1. Establishes the land and water conservation fund.
2. Establishes a "user fee" or admissions fee to be charged at designated units of the National Park System administered by the Department of the Interior and National Recreation Areas administered by the Department of Agriculture.
3. Requires special recreation permits for uses such as group activities, recreational events, and motorized recreational vehicles.
4. Establishes a grant program which provides financial assistance to states for planning, acquisition and development of outdoor recreational areas and facilities.
5. Requires the applicant to submit a comprehensive statewide outdoor recreation plan prior to consideration by the Secretary for financial assistance.

Administrative Responsibilities:

The Department of Interior, Office of Outdoor Recreation is responsible for preparing and maintaining an inventory and evaluation of outdoor recreational needs and resources, preparing a system for classification of outdoor recreation resources, formulating and maintaining a comprehensive nationwide outdoor recreational plan, and providing technical and financial assistance in developing and carrying out their plans.



POLITICAL JURISDICTION: Federal

Title or Reference: National Forests 16 USCA Sections 471, 475, 476, 480, 482, 482L-2, 482L-3

Implementing Agency: Department of Agriculture, Forest Service

Affected Land Use Activities: Timber Production

Purpose:

To improve and protect the national forests, secure favorable conditions of water flow and furnish a continuous supply of timber.

Provisions:

1. Establishes national forests.
2. Regulates the sale of timber and requires that notice of the sale take place not less than 30 days before the sale.
3. Any person who violates any rule or regulation shall be guilty of a misdemeanor and upon conviction be fined not more than \$500 or imprisoned for not more than one year, or both.
4. Permits prospecting, development and utilization of mineral resources within the boundary of the national forests in Minnesota (Black Hills National or Harvey National Forest), Section 508b.
5. Authorizes the forest service to investigate, purchase lands or interests in lands or rights-of-way for use and protection of water rights in national forests.
6. Merchantable timber may be cut only if cutting will not detrimentally affect the "purity" of the water.
7. Authorizes permits for timber cutting in certain national forests if necessary to mining operation.

Administrative Responsibilities:

The Forest Service, Department of Agriculture is responsible for promulgating rules and regulations with regard to the use, occupation, and sale of timber in national forests. The Forest Service is also responsible for the administration and protection of the national forest in accordance with national forest regulations, policies and procedures.



POLITICAL JURISDICTION: Federal

Title or Reference: Chapter 3, Forests; 16 USC 551-583; Service and Management

Implementing Agency: Forest Service, Department of Agriculture

Affected Land Use Activities: Woodland Grazing, Timber Production

Purpose:

To provide for the proper management of Forest Service lands through watershed protection, control of grazing on natural forest lands, reforestation programs, and coordinated harvesting with private landowners.

Provisions:

1. Provides the Secretary of Agriculture with the authority to enter into a cooperative agreement with a municipality (who obtains its water supply from a national forest) to protect the watershed within the area of the national forest.
2. Provides the Secretary of Agriculture with the authority to promulgate rules and regulations necessary to protect a watershed.
3. Details the duties of Forest Service officials with regard to stock for the prevention and extinguishment of forest fires, and for the protection of fish and game.
4. Authorizes the Secretary of Agriculture to ascertain and determine the location of public lands that are valuable for stream flow protection or for timber production and report the findings to the National Forest Reservation Commission.
5. Establishes the local advisory board for the purpose of listening to grievances of forest grazing permittees with regard to grazing on forest lands, recommending the issuance of permits, seasons of use, and the capacity of the land.
6. Requires permits for grazing on national forest lands. These permits are limited to ten years with renewable terms.
7. Requires the Secretary of Agriculture to make and keep current a comprehensive survey of the present and prospective requirements for timber and other forest production in the U.S.
8. Authorizes the Secretary of Agriculture to establish a program, the purpose of which is to conduct investigations, experiments, and tests that will promulgate the best methods of reforestation and of growing, managing and utilizing timber.



9. Authorizes the Secretary of Agriculture to enter into cooperative agreements with private owners of forest land within a sustained-yield unit (a unit of forest land under the jurisdiction of the Secretary of Agriculture) to provide coordinated management.

Administrative Responsibilities:

The Secretary of Agriculture is responsible for administering all programs under the Title.



POLITICAL JURISDICTION: Federal

Title or Reference: Public Lands Title 7 (USCA 136 V; Supp. 74)  
Chap. on Grazing

Implementing Agency: Secretary of Interior

Affected Land Use Activities: Woodland grazing

Purpose:

Establishes grazing districts on vacant, unreserved, unappropriated lands in an effort to provide highest use.

Provisions:

1. Allows Secretary to lease grazing privileges for a term of up to ten years. There is an option to renew the contract.
2. Allows the Secretary the right to refuse to renew a contract.

Administrative Responsibilities:

Secretary of Interior is responsible for designating grazing districts and promulgating rules and regulations with regard to grazing privileges.



POLITICAL JURISDICTION: Federal

Title or Reference: Public Works and Economic Development Act of 1965  
(amended 1976)

Implementing Agency: Department of Commerce

Affected Land Use Activities: Residential and industrial site runoff

Purpose:

To stimulate economically distressed regions, counties, and communities with substantial and persistent unemployment through public works and development facilities.

Provisions:

1. Authorizes EDA to provide grants to states, political subdivisions or private nonprofit organizations for construction of public facilities such as water and sewer systems, port facilities and flood control projects, industrial roads, expansion of harbor and port facilities.
2. Funds the public works projects through the award of direct grants supplementing grants, bonus grants, health facility operating grants, and loans, or through a combination of the above.

Administrative Responsibilities:

The Secretary of Commerce is designated Administrator for purposes of the Act. The key branch of the Department of Commerce which is responsible to react to applications, promulgate rules and regulations, and implement, evaluate, and approve application is the Economic Development Administration.



POLITICAL JURISDICTION: Federal

Title or Reference: Resource Conservation and Recovery Act of 1976;  
42 USC 3251 et. seq., PL 89-272, amended by PL 91-512,  
PL 93-14, PL 93-61, PL 94-580 and PL 74-46 as amended  
by Soil and Domestic Allotment Act

Affected Land Use Activities: Solid Waste

Purpose:

To provide technical and financial assistance for the development of management plans and facilities for the recovery of energy and other resources from discarded materials and for the safe disposal of discarded materials, and to regulate the management of hazardous waste.

Provisions:

1. Authorizes teams of personnel (referred to as Resource Conservation and Recovery Panels) to provide technical assistance on solid waste management to states and local governments upon request.
2. Requires the Administrator of EPA to develop and promulgate criteria for identifying characteristics of and listing descriptions of hazardous waste.
3. Requires the Administrator of EPA to promulgate rules establishing such standards, applicable to generators of hazardous waste.
4. Requires the Administrator of EPA to promulgate standards applicable to transporters of hazardous waste and owners and operators of hazardous waste treatment, storage, and disposal facilities.
5. Requires the Administrator of EPA to promulgate regulations as to the permit requirements for persons owning or operating a facility for treatment, storage, or disposal of hazardous waste.
6. Requires the Administrator of EPA to promulgate standards containing guidelines to assist in the development and implementation of state solid waste management plan.
7. Details the minimum requirement for approval of state plan.
8. Requires the Administrator of EPA to promulgate criteria for determining which facilities should be classified as open dumps and which shall be classified as sanitary landfills.
9. Prohibits open dumping of solid waste or hazardous waste, except in the case of any practice or disposal of solid waste under a timetable or schedule for compliance of such measure.



10. Requires the governor of each state to promulgate rules and regulations for development and implementation of a state plan.
11. Requires the governor to identify an agency to develop and implement the state plan.
12. Authorizes the governors of two or more states to enter into a cooperative agreement to designate or establish an agency to develop a plan for the region.
13. Establishes a grant program to provide financial and technical assistance to states, counties, municipalities and intermunicipalities, agencies, and state and local public solid waste management authorities for implementation of programs to provide solid waste management for resource recovery, resource conservation services, and hazardous waste management.

#### Administrative Responsibilities:

The Administrator of the Environmental Protection Agency is responsible for approving state or regional solid waste plans and applications for financial assistance. The Administrator is also responsible for promulgating rules and regulations with regard to characteristics and listing of hazardous wastes for owners and operators of hazardous waste treatment storage and disposal facilities, permit requirements, and for implementing state or regional plans.



POLITICAL JURISDICTION: Federal

Title or Reference: Safe Drinking Water Act, Part C

Implementing Agency: Environmental Protection Agency

Affected Land Use Activities: Liquid, Solid and Deepwell Disposal

Purpose:

To establish regulations for state underground injection control programs to prevent underground injection which endangers drinking water sources.

Provisions:

The EPA must adopt regulations which require states to develop control programs for underground injection. These programs must be approved by the EPA. The control programs shall:

1. Prohibit any underground injection which is not authorized by a state permit;
2. Require, for those injections which are permitted, that the applicant for the permit;
3. Pass a blanket rule allowing specific types of injections, if the rule will not allow injections which will endanger underground drinking water sources;
4. Require inspection, monitoring, record-keeping, and reporting of permitted activities;
5. Apply to all injections made by federal agencies or federally-owned land;
6. Specifically exempt from control the underground injection of brine and other fluids which are brought to the surface in connection with oil and natural gas production or the underground injection of a secondary or tertiary recovery of oil or natural gas from the permitting program, unless such requirements are essential to assure that underground sources of drinking water will not be endangered by such injection.
7. Issue temporary permits if necessary to allow continued injection operations until the final rules and regulations have been promulgated.



#### Administrative Responsibilities:

The State is required to develop a control program for underground injection of fluids. This program must be approved by the EPA as meeting the requirements for the Safe Drinking Water Act. Once the State's program is approved by the EPA, the state shall have the primary enforcement responsibilities for controlling underground fluid injection.

The EPA is given authority to insure that the state then enforces its control program through civil actions and penalties.



POLITICAL JURISDICTION: Federal

Title or Reference: Soil Surveys P.L. 89-560

Implementing Agency: Department of Agriculture, Soil Conservation Service

Affected Land Use Activities: Erosion

Purpose:

To protect and improve the quality of the environment, conserve land and water resources, provide for multiple uses of such resources and control and reduce pollution for sediment and other pollutants in areas of rapidly changing uses.

Provisions:

1. Authorizes the Secretary of Agriculture to establish a program to assist in making soil surveys in states and other political subdivisions.
2. Provides assistance upon request of an area with respect to making studies and reports necessary to classify and interpret kinds of soils and in furnishing technical and other assistance needed to make use of soil surveys.

Administrative Responsibilities:

The Department of Agriculture is responsible for administering this program.



POLITICAL JURISDICTION: Federal

Title or Reference: Surface Mine Reclamation Act, P.L. 95-87

Implementing Agency: USDA and the Department of the Interior

Purpose:

To regulate surface mining and to reclaim abandoned mines.

Provisions:

1. Establish a nationwide program to regulate surface mining.
2. Creates Office of Surface Mining (OSM). (5 regional and 14 district offices established to administer law.)
3. Prohibit Federal employees from performing any functions under the Act if they have a direct or indirect financial interest in coal mining operations.
4. Authorizes research and demonstration projects.
5. Creates Advisory Committee on Mining and Minerals Resources Research.
6. Creates abandoned mine reclamation fund. (Fee collection starts January 30, 1978.)
7. Establishes a USDA rural abandoned mine program which:
  - a) is eligible for 20% of reclamation fund (\$20-44 million per year)
  - b) provides for long-term agreements of up to 10 years with rural landowners for reclamation. (Regulations for implementation are being prepared by SCS for publication January 1978).
  - c) requires an estimated 300 man-years in 1978 to 670 man-years by 1981.
  - d) As of December 1, 1977, approximately 1 million acres of coal mined lands were in need of reclamation.
8. Organizes a state coordinating committee to coordinate the "rural lands" programs with other Title IV programs.
9. Provides for research and demonstration projects relative to surface mine reclamation.



10. Requires initial regulations (Published final in Federal Register December 8, 1977) for control of environmental impacts of surface coal mining.
11. Provides assistance in a sediment and erosion control, soil reconstruction, vegetative establishment and impoundment design. (Agreements for technical assistance will be worked out among State agencies and USDA agencies at State level.)
12. Defines prime farmland as land that has been used for intensive agriculture at least 5 years out of 20 years preceding the date of the permit application and meets the technical criteria published by USDA in the Federal Register August 23, 1977.
13. States that if prime farmlands are in the permit area regulations require:
  - a) the regulatory authority consult with the appropriate SCS State Conservationist (State land use committees and conservation districts should be utilized as part of the consulting base) on restoration plan for prime farmlands.
  - b) operator compliance with specific USDA reconstruction standards.
  - c) no part of the level posted prior to mining be released until soil productivity has returned to equivalent levels of yield as existed prior to mining.
14. Provides for use of USDA personnel as Federal inspectors during initial program.
15. Requires Secretary of the Interior to solicit USDA views prior to State program approval.
16. Provides for designation of lands as unsuitable for mining minerals other than coal.
17. Provides for USDA input to annual report submitted to Congress.
18. Provides for indepth study of current and developing technology for mining and reclamation.
19. Authorizes the construction and operation of 10 university coal research laboratories.
20. Authorizes research demonstration projects and training relative to coal mining and reclamation.



### Administrative Responsibilities:

The Department of the Interior is responsible for implementing the act. USDA is also charged with considerable responsibilities.



POLITICAL JURISDICTION: Federal

Title or Reference: Water Bank Act, P.L. 91-559

Implementing Agency: Department of Agriculture, Agriculture Stabilization and Conservation Services

Affected Land Use Activities: Recreation

Purpose:

To conserve surface waters; preserve and improve migratory waterfowl habitat and wildlife resources; and secure other environmental benefits and agricultural production limitations.

Provisions:

1. Authorizes the Secretary of Agriculture to enter into a 10-year agreement with eligible landowners in important migratory waterfowl nesting and breeding areas or other wetlands identified in a conservation plan developed in cooperation with the Soil and Water Conservation Districts in which the lands are located, under such rules and regulations prescribed by the Secretary.
2. Requires agreements by landowners not to drain, burn, fall or otherwise destroy the wetland character of such areas and not to use such areas for agricultural purposes in return for annual payments.

Administrative Responsibilities:

The Secretary of Agriculture is responsible for carrying out the program in harmony with wetlands programs administered by the Secretary of the Interior and utilizes technical and related services of appropriate state, Federal and private conservation agencies to assure proper coordination.



POLITICAL JURISDICTION: Federal

Title or Reference: Water Pollution Control Act Amendment of 1972 as amended by the Clean Water Act of 1977 (PL 92-500) Sections 102, 104, 105, 108, 208, 303, 304, 305, 315, 404, 405, 503.

Implementing Agency: Environmental Protection Agency

Affected Land Use Activities: all categories

Provisions:

1. Establishes national goals and policy with regard to water pollution.
2. Empowers the Environmental Protection Agency to administer the provisions of the Act.
3. Requires EPA's Administrator to develop comprehensive programs for preventing, reducing or eliminating the pollution of navigable surface and ground waters and improving the sanitary condition of surface and ground waters. Authorizes the Administrator to make joint investigations.
4. Establishes a grant program that provides funds (to pay not more than 50 percent of the administrative expenses of a planning agency, not to exceed three years) to develop a comprehensive pollution control plan for the Basin, when more than one state is involved in the application.
5. Requires the Administrator to conduct research and technical work with respect to water quality in the waters of the Great Lakes.
6. Requires the Administrator of EPA to develop and issue to the states the latest scientific knowledge available in indicating kind and extent of effects on health and welfare which may be expected from the presence of pesticides in the water in varying quantities.
7. Requires the Administrator of EPA to carry out a comprehensive study and research program to develop new and improved methods of preventing and eliminating pollution from agriculture.
8. Authorizes the Administrator of EPA to establish a grant program for research and development of:
  - a) new or improved methods for the prevention, removal, reduction, and elimination of pollution in lakes and the construction of publicly owned research facilities for such purposes;



- b) advanced treatment and environmental enhancement techniques to control pollution from all sources within such basins or portions thereof, including nonpoint sources;
  - c) new and improved methods of eliminating or reducing pollution from agriculture.
- 9. Empowers the Administrator of EPA, in carrying out the above mentioned program, to conduct, on a priority basis, an accelerated effort to develop, refine, and achieve practical application of:
  - a) waste management methods applicable to point and nonpoint sources of pollution;
  - b) advanced waste treatment methods applicable to point and nonpoint sources;
  - c) improved methods and procedures to identify and measure effects of pollutants on the chemical, physical and biological integrity of the water.
- 10. Authorizes the Administrator of EPA to establish a program to assist any state, political subdivision, interstate agency, or combination thereof, to carry out one or more projects to demonstrate new methods and techniques and to develop preliminary plans for the elimination or control of pollution within all or any part of the watersheds of the Great Lakes.
- 11. Directs the Secretary of the Army, acting through the Chief of Engineers, to design and develop a demonstration waste management program for the rehabilitation and environmental repair of Lake Erie.
- 12. Requires that a continuing areawide waste treatment management planning process consistent with Section 201 of the Act be in operation not less than one year after an organization has been designated the state planning agency.
- 13. Details the process under which a plan should be prepared.
- 14. Requires areawide waste treatment management plans to be certified annually by the governor as being consistent with applicable basin plans, and that such plans then be submitted to the Administrator for approval.
- 15. Provides the governor with the authority to designate one or more waste treatment management agencies.



16. Establishes a grant program to be administered by EPA to provide financial assistance to any agency designated for the cost of developing and operating a continuing areawide waste treatment management planning process. EPA and the Secretary of the Army, Chief of Engineers, are authorized to provide technical assistance upon request.
17. Requires each state to identify waters for which effluent limitations and controls are not stringent enough.
18. Requires the Administrator to issue information, including guidelines for identifying and evaluating the nature and extent of nonpoint sources of pollutants and processes, procedures, and methods to control pollution resulting from:
  - a) agricultural and silvicultural activities;
  - b) mining activities;
  - c) all construction activities;
  - d) salt water intrusion;
  - e) disposal of pollutants in wells or in subsurface excavations;
  - f) changes in movement, flow, or circulation of any navigable waters or ground waters.
19. Requires that each state prepare an annual report to EPA describing water quality and the extent to which that state has sought to control water pollution. These state reports, together with an EPA analysis, are sent annually to Congress.
20. Creates a National Study Commission to investigate and study all the technical aspects of the total economic, social, and environmental effects of achieving or not achieving the effluent limitations and goals set forth for 1983.
21. Prohibits the disposal of sewage sludge without a permit issued by the Administrator of EPA.
22. Establishes in the EPA a Water Pollution Control Board to advise the Administrator of EPA.
23. Prohibits discharge of pollutants in virtually all U.S. waters, unless a permit is issued by EPA or an EPA approved program.
24. Requires EPA, in cooperation with States and their political subdivisions and other Federal agencies, to establish, equip, and maintain a water quality surveillance system.



25. Provides grants to municipalities to assist in financing the design, plans, and construction of municipal wastewater treatment facilities. Each project is eligible for 75 percent Federal assistance.
26. Establishes a Rural Clean Water Program for cost-sharing with owners and operators of rural land for the purpose of installing and maintaining best management practices to control nonpoint source pollution. This program will be administered by the Secretary of Agriculture acting through the Soil Conservation Service and other applicable agencies of the Department of Agriculture. Cost-sharing, on a five to ten year contract basis, will be limited to 50 percent except in special cases. Implementation of this program will be limited to those areas where EPA has approved a Section 208 Water Quality Management Plan and the practices to which the contracts apply must be certified by the water quality management agency to be consistent with such plans. Priority will be given to areas and sources that have the most significant effect on water quality.
27. Authorizes the Secretary, after notice and opportunity for public hearing, to issue general permits on a State, regional, or nationwide basis for any category of activities involving discharges of dredged or fill material if the Secretary determines that the activities in such category are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment.
28. Allows the Governor of any State desiring to administer its own individual and general permit program for the discharge of dredged or fill material into the navigable waters (other than those waters which are presently used, or are susceptible to use in their natural condition or by reasonable improvement as a means to transport interstate or foreign commerce shoreward to their ordinary high water mark, including all waters which are subject to the ebb and flow of the tide shoreward to their mean high water mark, or mean higher high water mark on the west coast, including wetlands adjacent thereto) within its jurisdiction may submit to the Administrator a full and complete description of the program it proposes to establish and administer under State law or under an interstate compact. In addition, such State shall submit a statement from the attorney general (or the attorney for those State agencies which have independent legal counsel), or from the chief legal officer in the case of an interstate agency, that the laws of such State, or the interstate compact, as the case may be, provide adequate authority to carry out the described program.



29. States that if the Administrator fails to make a determination with respect to any program submitted by a State within a one-hundred-twenty days after the date of the receipt of such program, such program shall be deemed approved.
30. States that the discharge of dredged or fill material as part of the construction of a Federal project specifically authorized by Congress, whether prior to or on or after the date of enactment of this subsection, is not prohibited by or otherwise subject to regulation under this section, or a State program approved under this section, or section 301(a) or 402 of the Act (except for effluent standards or prohibitions under section 307), if information on the effects of such discharge, including consideration of the guidelines developed under subsection (b)(1) of this section, is included in an environmental impact statement for such project pursuant to the National Environmental Policy Act of 1969 and such environmental impact statement has been submitted to Congress before the actual discharge of dredged or fill material in connection with the construction of such project and prior to either authorization of such project or an appropriation of funds for such construction.

Program Guidance Memorandum of SAM 31 Reference: 40 CFR 131.11(N)

31. Stipulates that a regulatory program be submitted for approval as part of a 208 plan in those cases where the 208 agency, in consultation with the Regional Administrator, has determined that such a program is the most practicable method of assuring that an effective nonpoint source control program is implemented. Such a determination shall be based on economic, technical, social, and environmental factors.
32. Declares that regulatory programs should be designed to attain the 1983 water quality goals set forth in Section 101(a) of the Act. They are defined as programs which are enforceable and are administered by agencies with adequate legal authority and resources to ensure their implementation.
33. Does not require a regulatory program where the plan prepared under Section 208 certifies that substantial water quality problems resulting from nonpoint sources do not exist or are not likely to develop in the foreseeable future.
34. Allows for a great deal of flexibility as to the particular regulatory program which is most appropriate to control a particular nonpoint source. The program may address a particular category



of activity, such as construction or mining; a particular pollutant, such as sediment; or particular geographical areas which are determined to be sensitive or critical. Choice of a regulatory program and the appropriate level of government (State, local or regional) to administer the program will depend on the type and extent of the nonpoint source problem, legal authorities, existing programs and existing intergovernmental relationships. However, where necessary to ensure an effective program, new relationships should be developed.

35. Allows for various types of control tools to be utilized, such as permits, licenses, contracts, notification, bonding, leases, plans, and various management techniques, will depend upon the intensity, scope and type of nonpoint source problem to be controlled, land ownership patterns, and such physical factors as rainfall, soil characteristics, geological conditions and topography.
36. Requires a regulatory program to include the following:
  - a) authority to control the problem which the program addresses (i.e., an activity, pollutant, or geographical area).
  - b) authority to require the application of Best Management Practices and their periodic revision.
  - c) monitoring and/or inspection authority.
  - d) authority to implement the chosen control tool(s) (i.e., permits, licenses, contracts, etc.)
  - e) enforcement authority.
  - f) a designated management agency or agencies responsible for implementing the regulatory program with:
    - expertise in the subject matter area to be controlled
    - adequate staff
    - adequate funding
    - the relevant authorities pursuant to Section 208(c)(2) and 40 CFR 131.11(o).
37. Requires a regulatory program to have the necessary implementing regulations in effect and sufficient resources available to carry out the required activities.
38. Evaluates adequacy of a particular program to achieve compliance in light of the stage of development of the program. In some jurisdictions, nonpoint source control programs are already in existence, and therefore, a certain level of program maturity exists therein which may not exist in jurisdictions which lack nonpoint source control experience. Where a program is fully established and has been in place for a period of time, it should be possible to determine its effectiveness and evaluate where changes need to be made. Approval shall be withdrawn if the program is not being adequately implemented or does not prove to be effective.



39. Indicates deficiencies of a program could include insufficient legal authority, inadequate rules and regulations, inadequate resources and an inadequate management agency. Determinations of adequacy or sufficiency relating to particular elements of a regulatory program will be made by the Regional Administrator on a case by case basis.
40. Allows conditional approval to be granted under the following conditions:
- a) where the legislative authority exists but means of implementation are not available or are not satisfactory, such as insufficient resources, lack of regulations, questions regarding designated agency capability, etc.; or
  - b) where the legislation has been introduced, but not enacted; or
  - c) where a specific legislative proposal has been developed and the plan contains a reasonable schedule for introduction to the legislative body.
41. States that the conditions for full approval and a schedule for meeting the conditions should be agreed to by the Regional Administrator and the agency(ies) involved prior to conditional approval being granted.
42. Require periodic (at least annual) reporting to the Regional Administrator on progress being made in meeting the schedule shall be required. Conditional approval shall be withdrawn if the Regional Administrator finds the agreed to progress is not being made.
43. Provides the Regional Administrator with the authority to disapprove any regulatory program which does not meet the conditions set forth in this memorandum for either approval or conditional approval.
44. Allows other approaches to nonpoint source control to be approved by the Regional Administrator as fulfilling the nonpoint source control requirements in Section 208(b)(2)(F-K) only where, in his judgement, the program will result in implementation of nonpoint source controls which will result in achievement of the desired water quality goals. Full approval of non-regulatory programs will only be given where implementation efforts, such as hiring of personnel or budget allocations, have commenced. If implementation will occur in stages (i.e. only a portion of the total additional personnel or funding required will be in place in year one) and stage one has been implemented and a definite schedule for implementing future stages has been agreed upon, full approval may be granted. Conditional approval may be granted where the conditions noted below have been met, a schedule for implementation has been agreed upon, but actual implementation has not commenced. Full



or conditional approval shall be given only when the following conditions are met:

- a) identification of Best Management Practices.
  - b) agreement on schedule of milestones, such as implementation, monitoring and program evaluation.
  - c) provision of an effective educational program to inform the affected public of the requirements.
  - d) provision of adequate technical assistance and financial assistance; if needed.
  - e) agreement to reporting system (at least annual) to the Regional Administrator on progress made in implementation.
45. Allows the Regional Administrator to require such information in these reports as is necessary to evaluate milestone progress. Milestone progress can be shown in terms of implementation measures, resource commitment, and water quality improvement. Approval of non-regulatory approaches shall be withdrawn if the Regional Administrator determines that implementation milestones are not being met. These approaches will be allowed to continue from one reporting period to the next only when continuing and substantial progress, including the application of Best Management Practices, is being made toward attaining water quality goals. Where such progress is not being made, approval of these approaches shall be revoked and it will be presumed that a regulatory program is the most practicable means of assuring program implementation.
46. Provides the Regional Administrator with the authority to disapprove a proposed non-regulatory program as being inadequate for the nonpoint source portion of the plan when he has reason to believe it will not be effective and will not lead to the application of Best Management Practices. Factors he should consider in making that determination should include the severity of the nonpoint source problem, past experience of the involved governmental unit with the proposed approach, and the type of program that is proposed. If funding sources for program implementation are not identified with specificity and are not realistic sources, the proposed non-regulatory program will be disapproved.
47. States that where substantial water quality problems continue to exist, those programs which are merely a continuation of an existing program (i.e., do not provide additional educational, technical, or financial assistance, or utilize techniques and institutions which have not been successful), which has been in place for a sufficient time to evaluate its effectiveness, shall not qualify as acceptable.



48. States that where regulatory programs already exist (e.g., construction, mining) proposed new programs will be expected to be at least as stringent as existing regulatory programs, and if necessary to achieve water quality goals, more stringent.
49. Makes the Regional Administrator responsible for providing necessary technical assistance to State and local planning agencies to assure that effective programs are developed and implemented.

#### Administrative Responsibility

EPA has responsibility for administering the Act.



POLITICAL JURISDICTION: Federal

Title or Reference: Water Resources Planning Act

Implementing Agency: Water Resources Council

Affected Land Use Activities: Enabling Legislation

Purpose:

To provide for the optimum development of the nation's natural resources through the coordinated planning of water and related land sources.

Provisions:

1. Establishes the Water Resources Council.
2. Requires the Council to maintain a continuing study of the adequacy of water supplies in the U.S. and the relation of regional or river basin plans and programs to the requirements of the nation; as well as evaluate the adequacy of existing and proposed policies.
3. Establishes principles, standards and procedures for Federal participants in the preparation of comprehensive regional or river plans.
4. Establishes the River Basin Commissions upon and details the commissions membership requirements, duties and authorities.
5. Establishes the Great Lakes Basin Commission.
6. Authorizes financial assistance to states for the development of comprehensive water and related land resources plans.

Water Resources Council Principals and Standards for Planning and Related Land Resources -- 38 FR 24778

Details the principals and standards established by the Water Resources Council with regard to planning the use of the water and related land resources.

Administrative Responsibilities:

The Water Resources Council is responsible for reviewing and approving any plans received from the river basin commissions, principles, standards and procedures for Federal participants in the preparation of comprehensive regional or river basin plans, review and evaluate Federal water and related land resources projects.

The river basin commissions are responsible for preparing and continually updating the comprehensive water and related land resources plan.



POLITICAL JURISDICTION: Federal

Title or Reference: Watershed Protection and Flood Prevention Act of 1954 PL 83-566, 16 USCA 1001 et seq.

Implementing Agency: Department of Agriculture

Affected Land Use Activities: All categories

Provisions:

1. Authorizes the Secretary of Agriculture to establish the Watershed Protection and Flood Prevention Program (Small Watershed Program).  
This program:  
Provides technical and financial assistance in planning and carrying out works of improvement. Assistance is provided in planning, designing and installing watershed works of improvement; in sharing costs of flood prevention, irrigation, drainage, sedimentation control, fish and wildlife developments, public recreation, water quality, and in extending long-term credit to help local interests with their share of the costs. Watershed area must not exceed 250,000 acres. Capacity of a single structure is limited to 25,000 acrefeet.
2. Requires plans and estimates for works of improvement to be prepared.
3. Authorizes the Secretary of Agriculture to establish the Watershed Protection and Flood Prevention Program. This program is designed to provide loan assistance to local sponsors to share costs for works of improvement in approved watersheds. The total amount of the loans for any single plan may not exceed \$5,000,000.
4. Authorizes the Secretary of Agriculture, through the Soil Conservation Service to assist states and other Federal agencies preparing comprehensive plans for the development of water and related land resources within river basins or regions, giving full consideration to agricultural program impacts on resource development and use (River Basin Program).

Administrative Responsibilities:

The Department of Agriculture, Soil Conservation Service, is responsible for administering both the Watershed Protection and Flood Prevention Program and the River Basin Program. The Department of Agriculture, Farmers Home Administration, is responsible for administering the Watershed Protection and Flood Prevention Loans Program.



POLITICAL JURISDICTION: Federal

Title or Reference: Act of March 3, 1879, 43 USC 31, 48, 49 and 50

Implementing Agency: Department of the Interior, U.S. Geological Survey

Affected Land Use Activities: Extractive operations

Purpose:

To provide water information for economic development and best use of water resources to carry on research in hydrology.

Provisions:

1. Authorizes the Secretary of the Interior, through the Geological Survey, to provide technical information assistance to state and other political subdivisions of states to make topographic and geological surveys and conduct investigations relating to mineral and water resources.
2. Establishes the Office of the Director of the Geological Survey.

Administrative Responsibilities:

The Director of the Geological Survey, Department of the Interior, is responsible for providing technical assistance to states and other political subdivisions of states.



POLITICAL JURISDICTION: Federal

Title or Reference: PL 74-46 as amended by Soil Conservation and Domestic Allotment PL 74-461

Implementing Agency: Department of Agriculture, Agricultural Stabilization and Conservation Service

Affected Land Use Activities: all categories

Purpose:

To preserve and improve soil fertility, promote the economic use and conservation of land, protect rivers and harbors against the results of soil erosion in aid of maintaining the navigability of waters and water-courses and in aid of flood control and the prevention and abatement of agricultural-related pollution.

Provisions:

1. Authorizes the Secretary of Agriculture to make payments or grants of aid to farmers, ranchers and woodland owners (primarily through cost-sharing) to carry out approved soil, water, woodland, and wildlife conservation practices.
2. Provides the Secretary of Agriculture with the authority to create a program (Soil and Water Conservation Program) that provides technical and consultative assistance to individuals, groups and units of government in planning and applying soil and water conservation plans.
3. Authorizes the Secretary of Agriculture to create a program (Plant Materials for Conservation Program) that seeks to introduce new and improved plant materials for soil, water, wildlife conservation and environmental improvement.

Administrative Responsibilities:

The Department of Agriculture is responsible for administering all the above programs. The Soil Conservation Service, a division of the Department of Agriculture, is responsible for administering the Soil and Water Conservation Program. SCS offices are located in nearly all counties throughout the country. SCS representatives are responsible for providing technical services to landowners and land users; helping prepare and revise conservation plans; making field investigations and recommendations on land use and treatment for school, sanitary landfill, hospital, recreation and water and sewer facilities; and providing technical information to government bodies for use in enacting zoning ordinances, land use regulations, sanitary codes and building codes and standards.



## Bibliography

1. Environmental Protection Agency. Guidelines for Areawide Waste Treatment Management Planning, EPA Washington, D.C. August 1975.
2. Ernst & Ernst, Inc. Summary of Preliminary Drafts: Appendix 6, Institutional System Inventory. Appendix II, Institutional System Water Quality, East Central Michigan Planning & Development Region.
3. General Services Administration. 1977/1978 United States Government Manual, U.S. Government Printing Office, Washington, D.C. 1977.
4. Gusher, David E. An Analysis of PL 92-500 The Federal Water Pollution Control Act Amendments of 1972, Congressional Research Service, Library of Congress, November 1972.
5. North Atlantic Regional Water Resources Study Coordinating Committee. North Atlantic Regional Resources Study Appendix. May 1972.
6. Schweitzer, Eric. The Coastal Zone Management Program and the Niagara Frontier, Niagara Frontier Builders Association, Buffalo, New York, August 1976.
7. U.S. Department of Agriculture, Forest Service. RPA A Recommended Renewable Resource Program. Forest Service, U.S.D.A. Washington, D.C., 1977.
8. U.S. Environmental Protection Agency. Compilation of Federal, State, and Local Laws Controlling Nonpoint Pollutants, U.S. EPA, Washington, D.C., September 1975.
9. U.S. General Accounting Office. Improvements Needed by the Water Resources Council and River Basin Commission to Achieve the Objectives of the Water Resources Planning Act of 1965, U.S. General Accounting Office, October 31, 1977.





**INTERNATIONAL JOINT COMMISSION  
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